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ABSTRACT

This document provides an up-to-date array of indicators representing the consensus of professional thinking on how to measure the current state of education internationally. It provides information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. Indicators are displayed in six chapters: (1) "Context of Education"; (2) "Financial and Human Resources Invested in Education"; (3) "Access to Education, Participation and Progression"; (4) "The Learning Environment and Organisation of Schools"; (5) "Individual, Social and Labour Market Outcomes of Education"; and (6) "Student Achievement." The 2000 edition provides new insights into the financing of education, with a focus on public subsidies and transfers for education and their beneficiaries. New indicators also reflect on international student mobility, participation in skill improvement among the employed population, and students with special educational needs. For many indicators, more countries are now providing data. Countries that are not members of the Organisation of Economic Co-operation and Development have also contributed to the 2000 edition, extending the coverage of some of the indicators to almost two-thirds of the world's population. Three appendixes contain information on typical graduate ages, basic reference statistics, and the methodology. A glossary is also included. (Contains 87 charts and 116 tables.) (Author/SLD)

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Education at a Glance

OECD INDICATORS

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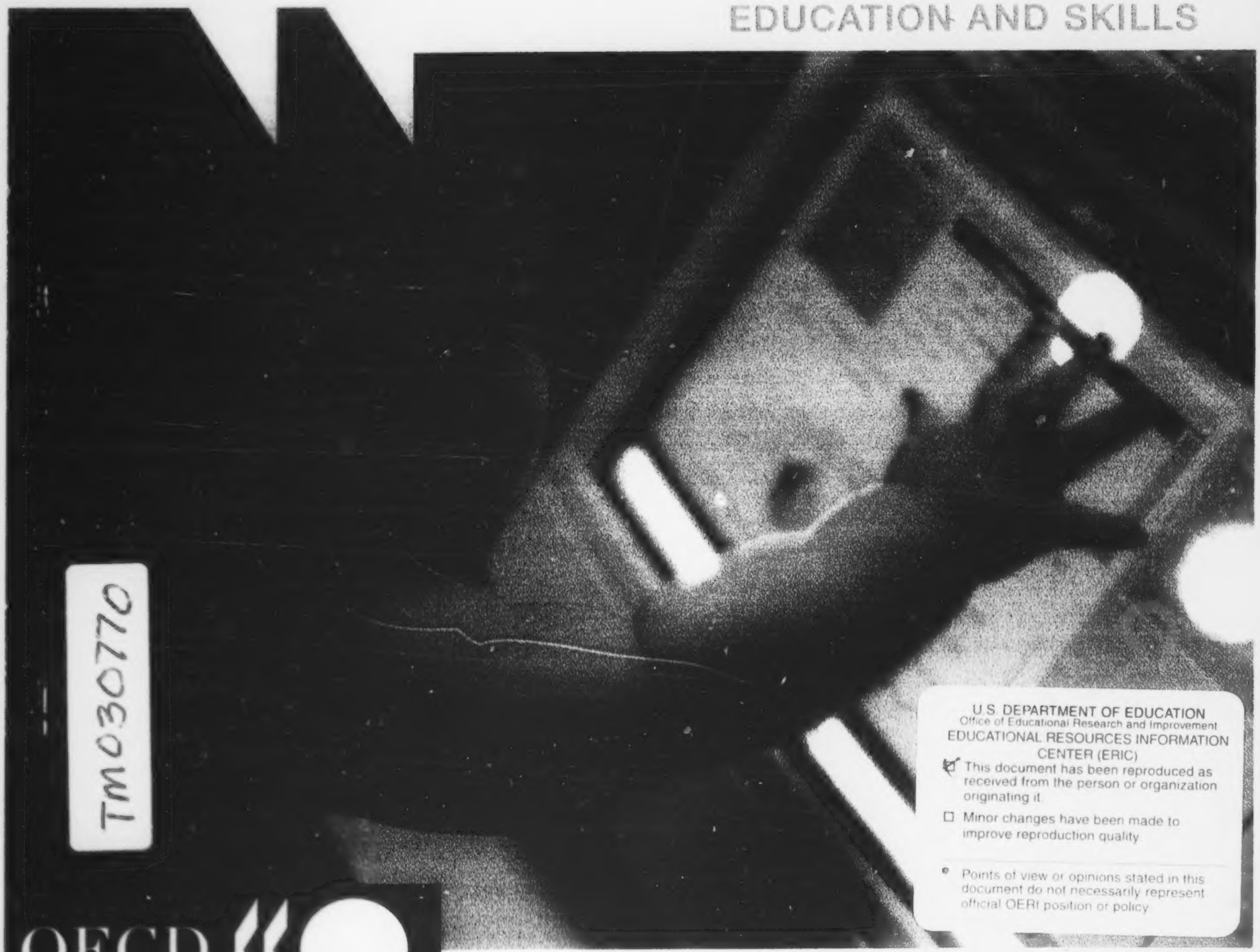

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2000 Edition

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Centre for Educational Research and Innovation
Indicators of Education Systems

Education at a Glance

OECD INDICATORS

2000 EDITION

OECD

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

EDUCATION AT A GLANCE – OECD INDICATORS

The publication was prepared by the Statistics and Indicators Division of the OECD Directorate for Education, Employment, Labour and Social Affairs. This work was facilitated by the financial and material support of the three countries responsible for co-ordinating the INES Networks – the Netherlands, Sweden and the United States. In addition, work on the publication has been aided by a grant from the National Center for Education Statistics (NCES) in the United States. *Education at a Glance* is published on the responsibility of the Secretary-General of the OECD. The data underlying the OECD education indicators are accessible via the Internet [http://www.oecd.org/els/stats/els_stat.htm].

The development of indicators for the non-Member countries participating in the UNESCO/OECD World Education Indicators programme for this edition of *Education at a Glance* was made possible by grants from the Commonwealth of Australia and Germany. The World Education Indicators programme is funded by the World Bank and Facilitated by the support from many OECD countries, most notably Canada, the Netherlands and the United States.

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- to contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

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The main objectives of the Centre are as follows:

- *analyse and develop research, innovation and key indicators in current and emerging education and learning issues, and their links to other sectors of policy;*
- *explore forward-looking coherent approaches to education and learning in the context of national and international cultural, social and economic change; and*
- *facilitate practical co-operation among Member countries and, where relevant, with non-member* countries, *in order to seek solutions and exchange views of educational problems of common interest.*

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INTRODUCTION

THE OECD EDUCATION INDICATORS

The 1990s have witnessed growing demand for learning throughout OECD countries. Compelling incentives for individuals, economies and societies to raise the level of education have driven increased participation in a widening range of learning activities by people of all ages, from earliest childhood to advanced adulthood. The challenge, in this era of expanding, deepening and diversifying demand for learning over a lifetime, is how best to meet the volume of demand while ensuring that the nature and types of learning respond effectively to needs.

A quantitative description of the functioning of education systems can allow countries to see themselves in the light of other countries' performance. Through international comparisons, countries may come to recognise strengths and weaknesses in their own systems and to assess to what extent variations in educational experiences are unique or mirror differences observed elsewhere.

In searching for effective education policies that enhance individuals' social and economic prospects, provide incentives for greater efficiency in schooling and help to mobilise resources in order to meet rising demands for education, governments are paying increasing attention to international comparative policy analysis. This attention has resulted in a major effort by the OECD to strengthen the collection and reporting of comparative statistics and indicators in the field of education. Over the past twelve years, the OECD has developed and published a broad range of comparative indicators that provide an insight into the functioning of education systems – reflecting both the resources invested in education and their returns.

The indicators provide information on what are widely agreed to be important features of the functioning, development and impact of education – from early childhood through formal education to learning and training throughout life. They are the product of an ongoing process of conceptual development and data collection, the objective of which is to link a broad range of policy needs with the best available international data. Together with OECD's country policy reviews and analyses, they are designed to support the efforts of governments in policy reform.

THE 2000 EDITION OF EDUCATION AT A GLANCE

The 2000 edition of *Education at a Glance* – OECD *Indicators* provides a richer array of indicators than ever before, based on a new framework for comparing educational programmes – ISCED-97 – which OECD governments developed and adopted in 1999. The thematic organisation of the volume, and the background information accompanying the tables and charts, make this publication a valuable resource for the analysis of education systems across countries. The indicators are displayed in six chapters:

- Chapter A presents indicators on the context in which education systems operate. It focuses on the demographic background to educational provision as well as on the existing stock of human capital.
- Chapter B deals with the financial and human resources that countries invest in education, comparing spending on education relative to national income, the number of students and the size of the public purse; the ways in which education systems are funded and the sources from which the funds originate; and the split of resources between different resource categories.
- Chapter C presents indicators on access to education, participation, progression and completion. Trends in enrolment and completion in the various levels of education and types of educational institution are shown in order to indicate how educational supply and demand have evolved in different countries.

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- Chapter D deals with the learning environment and the various ways in which school systems are organised. It includes data on the compensation of teachers; the demography of the teaching force; training requirements for new teachers; the numbers of hours for which teachers are required to teach and students are required to be in the classroom; subject emphasis in the curriculum; decision-making about the curriculum; and the availability and use of computers in schools.
- Chapter E presents a broad picture of individual, social and labour-market outcomes of education. It deals with labour force participation by level of educational attainment; education and work among the youth population; and earnings and educational attainment.
- Finally, Chapter F presents indicators on student achievement.

Education at a Glance is designed to provide a comprehensive statistical description of the state of education internationally. It therefore covers a broad range of educational domains and the data presented are accompanied by detailed explanations that can guide readers on how to draw valid conclusions from the indicators and to interpret country differences. In order to keep the publication manageable, the number of indicators has been limited to 30, with the choice of indicators guided by the following principles:

- *Education at a Glance* seeks to provide an appropriate balance between an *encyclopaedia* function (showing how things are and where countries stand) and a *yearbook* function (showing how things are changing). Trends are highlighted, in particular, in Indicators A1, A2, B1, B4, C1, C3, E1 and F2.
- Successive editions of *Education at a Glance* seek to maintain sufficient room for *innovation*. About one third of the indicators have been newly introduced this year (or are recurrent indicators that are not produced on an annual basis). These are Indicators B3, C5, C7, D2, D5, D7, E3, F2 and F3. About another third of the indicators were present in the preceding edition but changes in data sources, methods and presentation have been introduced to improve these indicators. This concerns indicators A2, B2, B4, B6, C1, C2, C4, C6, D3, D6 and E2. The remaining indicators have been kept stable in both content and presentation (A1, B1, B5, B7, C3, D1, D4, E1, E4, E5 and F1).
- More than one third of the indicators relate, directly or indirectly, to the *outcomes* of education systems, reflecting a progressive shift in public and governmental concerns away from control over the resources and content of education towards a focus on results. These are indicators A2, C2, C4, D5, E1, E2, E3, E4, E5, F1, F2 and F3.
- Finally, almost half of the indicators provide a perspective of *in-country variation*, thus facilitating analyses of issues of equity in provision and outcomes of education. These are indicators A2, C7, D2, D5, D6, D7, E1, E2, E3, E4, E5, F2, F3.

The publication *Education Policy Analysis*, which builds on, and complements *Education at a Glance*, takes up selected themes of key importance for governments and analyses the implications for educational policy. The next edition of *Education Policy Analysis* will be published early in 2001, in preparation for the meeting of the OECD Education Committee at Ministerial level.

■ NEW DEVELOPMENTS

Enhanced indicators offer further insight into the learning environment and the organisation of schools

Ongoing debates about teachers' working conditions, qualifications and professional status have sparked interest in comparative data on levels of compensation for teachers, the amount of time that teachers spend working, the number of classes that they teach per day, and pre-service and in-service training requirements in different countries.

Indicator D1 provides a more differentiated picture of the compensation of teachers and shows how structural characteristics of education systems, such as teachers' salary levels, student/teaching staff ratios and teaching hours, translate into costs per teaching hour. It also provides more detailed information on additional financial rewards which teachers may receive for higher academic qualifications, teaching in specific fields, outstanding performance or additional workload.

A new indicator, D2, has been introduced to examine pre-service training requirements for teachers, with a distinction between academic training in the subject matter and professional or practical training. Since training requirements have changed substantially in recent decades, not all teachers active today meet the most recent requirements. Using the example of 8th grade teachers in mathematics, Indicator D2 also examines the highest level of formal education among currently active teachers, and how it is distributed across different age groups.

Another important factor in educational policy is the division of responsibilities between schools and national, regional and local authorities. Placing more decision-making authority at lower levels has been a key aim in the restructuring and systemic reform of the education system in many countries since the early 1980s. At the same time, there are also frequent examples of the growing influence of central control in certain domains. The new Indicator D6 presents the decision-making structure of OECD countries with respect to decisions related to the curriculum in lower secondary education. It also indicates the way in which decision-making power is shared within schools in relation to curriculum and school organisation.

While the time that students are intended to spend in school is covered by the traditional Indicator D4, the new Indicator D5 examines student absenteeism and compares the achievement of students in schools with lower and higher rates of absenteeism.

Finally, the new Indicator D7 shows how countries compare in the number of students per computer, students' access to e-mail and the Internet, as well as the guidance given to students in their use of information technology. As OECD economies are increasingly dependent on technological knowledge and skills embodied in the labour force, students with little or no exposure to information technology in school may face extra difficulties in making a smooth transition into the modern labour market.

New indicators have been designed to improve the information base on lifelong learning

The 2000 edition of *Education at a Glance* takes a further step towards reporting internationally comparable data on lifelong learning and its impact on society and the economy. The indicators on participation in education (C1 to C4) have been expanded to cover not just the young, but all age groups. Furthermore, information on participation in formal education in Indicator C1 has been supplemented by figures for the number of hours which a typical person would be expected to spend in education and training outside formal education over the life cycle. Finally, a new indicator, C7, has been introduced to compare the extent of participation in job-related or career-related continuing education and training among the employed population. This indicator also provides information on financial support for participants and obstacles to participation.

Improved measures examine investments in education and their returns

Education is an investment in human skills that can help to foster economic growth and raise productivity, contribute to personal and social development, and reduce social inequality. No single indicator can fully describe these relationships, but several of the new or enhanced indicators included in this edition of *Education at a Glance* allow for a better understanding of the cost and nature of the investment on the one hand, and of the benefits of education, or the "returns" to education, on the other.

On the investment side, Chapter B now provides a more complete picture of the resources devoted to education and how these evolved between 1990 and 1996. With increased participation drawing from new client groups and a wider range of educational opportunities, programmes and providers, governments are

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forging new partnerships to allow the different actors and stakeholders in education to participate more fully and to share the costs and benefits more equitably. As a result, public funding is now increasingly seen as providing only a part, although a very substantial part, of the investment in education. Private sources of funds are playing an increasingly important role. To shed light on this, the indicators in this year's edition place more emphasis on the relative proportions of funds for educational institutions that come from public and private sources, as well as trends in these proportions since 1990. In addition, a new indicator, B3, has been introduced to compare the levels and types of public subsidies to households to cover student living costs and educational expenses.

Decisions on how educational funds are spent are also likely to be influenced by which level of government has responsibility for, and control over, the funding of education. An important factor in educational policy is thus the division of responsibility for educational funding between national, regional and local authorities. Such aspects of decision-making have been newly integrated into Indicator B6 on the initial and final sources of public funding.

To respond to increasing public and government concern over the outcomes of education, about one-third of the indicators in this edition have been devoted to the individual, social and labour market outcomes of education. The indicator on educational attainment (A2), traditionally used as a proxy for the stock of human capital, is supplemented by information on literacy skills in the adult population. Furthermore, the indicators on completion of secondary and tertiary education (C2 and C4) now provide a more differentiated, more comparative picture of the qualifications obtained. With regard to the labour market outcomes of education, there is a more detailed picture than in past editions of the relationships between education, employment and earnings (Chapter E), with particular emphasis on the situation of the youth population.

Finally, the picture of the mathematics and science achievements of primary and lower secondary students presented in earlier editions has been expanded with a report on the attitudes of students towards science in relation to their achievement in science (F2). This is important because education systems not only aim at uniformly high levels of academic achievement, but also seek to develop and support positive attitudes among students towards learning and achievement and to foster both the motivation and the ability of students to continue learning throughout life. In addition, a new indicator (F3) explores what 4th and 8th grade girls and boys believe accounts for performance in mathematics, and it explores the relationship of their beliefs to their actual achievement in mathematics.

Trend data offer an insight into developments in the supply of and demand for learning opportunities

Broad shifts in the economic and social structures of OECD countries have increased the demand for educational reform, specifically for the development of strategies to adapt education and training systems to these new conditions. The development of policy options and strategies for change can best be achieved through an understanding of how education and training systems have evolved. The 2000 edition of *Education at a Glance* therefore complements its review of variation between countries with trend indicators in order to show how the supply of learning opportunities has evolved and how the expansion of learning opportunities has been financed. Although many of these indicators cover only a relatively short period of time, they trace a rapid growth in the proportion of young people undertaking upper secondary and tertiary education in many countries (C1 to C4) and a consequent rise in spending (B1 to B4). As the size of the youth population in most countries has stopped shrinking, and in some cases is expanding (A1), the increase in demand for education has imposed costs that governments are finding harder to bear.

New indicators have been designed to shed light on the transition from school to work

The labour-market situation of young persons has returned to the forefront of public debate in recent years. There is a general perception that the transition from education to work has become more difficult, despite the fact that the size of youth cohorts has been declining in most countries and that young people entering the labour market today have generally received more education than was the case ten years ago.

Despite progress in attainment levels, many young people are subject to unemployment. Differences in unemployment rates by level of educational attainment (E1) are an indicator of the degree to which further education improves the economic opportunities of young people. The revised indicator E2 provides a more detailed picture of the education and work status of young people and a new indicator, E3, focuses on young people's employment situation.

The indicators give greater emphasis to tertiary education, which is now replacing secondary education as the focal point of access to rewarding careers

As demand for education continues to rise, young people are becoming more likely to study well beyond compulsory schooling, both through attending higher levels of education and enrolling at older ages. The factors influencing this expansion are not hard to identify. Demand for education has never been greater, as individuals and societies are attaching ever more importance to education as a route to social and economic success. This is no longer simply a matter of ambitious families seeking advancement for their children, since early school leaving increases the risk of exclusion and of poor labour market prospects for all young people.

This edition provides a more complete picture of who enters tertiary education and who survives up to graduation. Indicator C3 estimates the percentage of young people who will enter university-level education during the course of their lives, given current conditions. It also gives information on patterns of participation and on the demographic composition of those entering tertiary education. At tertiary level many of those who participate do not obtain a qualification: Indicator C4 shows that, on average, only about two-thirds of university students complete their first degrees. Although "dropping out" is not necessarily an indicator of failure from the perspective of the individual student, high drop-out rates may indicate that the education system is not meeting the needs of its clients.

One way for students to expand their knowledge of other cultures and societies is to attend institutions of higher education in countries other than their own. International student mobility involves costs and benefits to students and institutions, in both the sending and the host country. While the direct short-term monetary costs and benefits of this mobility are relatively easily measured, the long-term social and economic benefits to students, institutions and countries are more difficult to quantify. Measures of the number of students studying in other countries, however, provide some idea of the extent of this phenomenon and the degree to which it is changing over time (see Indicator C5).

Students with disabilities or learning difficulties, and those from disadvantaged groups, are now covered in a new indicator

Students with disabilities or learning difficulties, and those from disadvantaged groups, often receive additional support in school to enable them to make satisfactory progress. Some continue to be educated in special schools, but increasingly they are included in mainstream education. The orientation of educational policies towards lifelong learning and equity has particular significance for these students since they face the greatest risk of exclusion, not only in schools but also in the labour market and in life generally. Monitoring the educational provision which is made for these students is of great importance, especially given the substantial extra resources involved. A greatly enhanced Indicator C6 compares the proportions of students with disabilities, learning difficulties and other disadvantages. It also presents data on the extent of provision, its location and the distribution of students with special educational needs by gender.

The coverage of the private sector continues to improve

Continuing improvements in the coverage of the private sector of education – with respect to both participation rates in educational institutions and sources of funds – provide a more complete picture of costs, resources and participation in education systems.

Methodological advances have improved the comparability of the indicators

In 1995, OECD, EUROSTAT and UNESCO introduced a new set of instruments through which data are now jointly collected on key aspects of education. This collaboration has resulted in substantial improvements in the collection, organisation and quality of international education statistics, as well as a reduction in the time taken to publish the indicators. The continuing implementation of common definitions, the use of high standards of quality control, and better data documentation have improved the international comparability of education statistics.

During 1997-1999, OECD Member countries established a new framework for the comparison of levels of education and types of educational programmes, ISCED-97, which has been implemented for the first time in this year's edition of *Education at a Glance* and has contributed significantly to the improved comparability of the indicators.

A wider range of countries is covered

Through the *World Education Indicators* programme (WEI), which the OECD co-ordinates in co-operation with UNESCO, 16 non-Member countries have contributed to this edition of *Education at a Glance*, extending the coverage of some of the indicators to more than two-thirds of the world population. These non-member countries include Argentina, Brazil, Chile, China, Egypt, India, Indonesia, Jordan, Malaysia, Paraguay, the Philippines, the Russian Federation, Sri Lanka, Thailand, Uruguay and Zimbabwe. Data for these countries are reported on the bases of OECD definitions and methods to ensure comparability with the OECD indicators. A more detailed analysis of the indicators from non-member countries is presented in OECD's *Investing in Education – Analysis of the* 1999 *World Education Indicators* (OECD, 2000).

Israel has observer status in OECD's activities on education and has contributed to the OECD indicators. Data for Israel are presented together with those from WEI participants.

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HIGHLIGHTS

■ PARTICIPATION AND ATTAINMENT

To meet rising demand, education systems are rapidly expanding to allow more people to study longer...

- Between 1990 and 1998, the average time a 5-year-old can expect to spend in education rose from 15.1 years to 16.4 years – but it still varies from 12 to 20 years across OECD countries (Table C1.1).
- In addition, adults participate, on average, for more than one year full-time equivalent in continuing education and training during the ages of 25 and 64 (Table C1.4).
- The rate at which populations attain upper secondary education has risen steeply with each successive age group. In all except eight countries, upper-secondary graduation rates now exceed 80 per cent, and in Austria, Germany, Iceland, Japan, Netherlands and New Zealand, they exceed 90 per cent (Table C2.2).

... and to obtain higher qualifications

- The number of students enrolled in tertiary programmes grew by more than 20 per cent between 1990 and 1997 in all but five OECD countries, and in eight countries by more than 50 per cent (Table C3.4).
- Today, an average of four out of ten young people are likely, during the course of their lives, to enter tertiary programmes which lead to the equivalent of a Bachelor's degree or above (tertiary type A). In some countries, this proportion is as high as one young person in two (Table C3.1).
- On average across OECD countries, a 17-year-old can expect to receive 2.3 years of tertiary education, most of which will be full-time (Table C3.2).

■ STUDY PATTERNS

Not all students who are enrolled always attend school.

- The proportion of 8th grade students enrolled in schools that have a moderate degree of daily student absenteeism (5 per cent or more) ranges from under 5 per cent in Japan and Korea to over 75 per cent in Australia, the Czech Republic, Ireland, New Zealand and the United Kingdom (Table D5.1).
- In most countries, school absenteeism is negatively associated with average mathematics performance among 8th grade students (Table D5.1).

While tertiary participation rates have risen steeply in many OECD countries, not all who participate complete a degree.

- On average across OECD countries, about a third of all entrants leave tertiary type A education without completing a degree – but this varies greatly between countries: in some countries only a minority of entrants complete the course; in others almost all do (Table C4.1).
- In some countries, low annual expenditure per student translates into high overall costs of tertiary education because of the long duration of tertiary programmes (Table B4.4).

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Significant numbers are studying abroad.

- The percentage of foreign students at tertiary level enrolled in OECD countries ranges from below 1 to around 16 per cent (Chart C5.1).
- Australia, France, Germany, the United Kingdom and the United States attract more than eight out of ten foreign students studying in the OECD area (Chart C5.2).
- In proportion to their size, Australia, Austria, Switzerland and the United Kingdom have the largest *net* inflows of foreign students (Table C5.1).
- Greek, Japanese and Korean students account for the largest proportions of foreign students from OECD countries, while students from China and Southeast Asia comprise the largest proportions of foreign students from non-OECD countries (Table C5.2).

Better educated adults are more likely to benefit from continuing education and training.

- Annual hours of training invested per employee range from 20 in Poland to over 53 in the Netherlands, New Zealand and the United Kingdom (Table C7.1).
- Workers with higher levels of educational attainment are also the most likely to participate in job-related education and training. Three times as many hours of training are invested in employees with a tertiary qualification as in those with less than an upper-secondary qualification (Table C7.4).
- Lack of interest remains the biggest obstacle to increasing participation of workers in job-related training (Table C7.7).

The transition from education to work is far from easy.

- Young people are experiencing growing difficulties in gaining a firm foothold in the world of work. The transition, even for successful graduates, tends to take place later than it used to, and it is often fragile and uncertain (Indicator E2).
- The average young person in the OECD aged 15 can now expect to hold a job for 6.5 years between the ages 15-29, to be unemployed for a total of one year and to be neither studying nor seeking work for 1.5 years (the rest is spent in education). It is in the average duration of spells of unemployment that countries vary most, reflecting the variation in youth employment rates over that period (Table E4.1).

■ PAYING FOR EDUCATION

More is being invested in education…

- In 16 out of 18 countries, public expenditure on education grew faster than GDP, with average educational spending as a percentage of GDP rising from 5.2 per cent in 1990 to 5.8 per cent in 1997 (Table B1.1*a*).
- With school-age populations stabilising in some countries, expanding rates of participation are feeding through into higher overall spending on education.

… mainly from public sources but with significant, and increasing, private contributions.

- Although education remains predominantly publicly funded, private spending is becoming more important and accounts, on average, for 10 per cent of initial educational funds (Table B2.1). Overall, this spending appears to supplement rather than displace public expenditure.
- For every dollar spent by tertiary institutions, about 77 per cent of final educational funds originate, on average, in public sources and about 23 per cent in private sources (Table B2.1).
- In all countries except Finland and Sweden, at least some students are enrolled in every country in tertiary institutions that charge tuition and other fees (Table B2.2).

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The higher the level of education, the more is spent per student.

- Spending per student at the primary level is, at an OECD average figure of US$ 3851, less than half of spending at the tertiary level (US$ 8 612). However, differences between countries in this indicator are marked: whereas Denmark only spends 1.1 times as much on a tertiary student as on a primary student, Mexico spends almost five times as much (Table B4.1).
- The ratio of primary students to teaching staff varies from 31:1 to 11:1 across OECD countries. There are nearly twice as many teachers per student in primary schools as in tertiary institutions in Germany, Japan and New Zealand; in Greece the reverse is true (Table B7.1).

Spending on tertiary education has grown fastest, but enrolment even more so.

- At the tertiary level, spending over the period 1990-1996 increased on average by 28 per cent, driven mainly by enrolment growth of 40 per cent over the same period (Table B4.3).

THE ORGANISATION OF SCHOOLS

In most countries, teachers are well paid in relation to average wages, but their salaries often lag behind those of university graduates.

- Although experienced primary and secondary teachers in most countries earn more than the average wage, salaries of experienced primary teachers in the Czech Republic, Hungary and Norway are less than the average GDP per capita (Table D1.1*a*).
- In many OECD countries, teachers are among the most highly educated workers. Yet teachers' statutory salaries after 15 years' experience are generally lower than the average earnings of university graduates, except in New Zealand (at the primary level) and, in the case of secondary-school teachers, in France, Germany, Sweden and Switzerland. Teachers' salaries in the Czech Republic and Hungary are 40 per cent or less of the average salaries of university graduates (Chart D1.2).

Teachers are now mainly graduates.

- All OECD countries now require an ISCED 5 (A or B) qualification in order to enter the teaching profession at the primary level or above, but not all teachers in service have acquired such a qualification (Table D2.1).
- The average duration of pre-service training for primary teachers varies from 3 years in Austria, Belgium and Spain to 5.5 years in Germany (Chart D2.1).
- At the secondary general level, the duration of pre-service training is generally higher than at the primary level. Australia, the United Kingdom and the United States are the only exceptions, showing no difference between the requirements for the different levels of education (Chart D2.1).

Education faces difficulties in keeping up with the development of information technologies.

- Between 54 and 85 per cent of lower secondary students are enrolled in schools where the principal reports that computer availability is a major obstacle to the realisation of the school's computer-related goals (Table D7.6).
- An average of two-thirds of lower secondary students are enrolled in schools where the principal reports that teachers' lack of knowledge and skills in using computers for instructional purposes is a major obstacle to the effective use of information technology in learning (Table D7.6).
- The average number of students per computer in the Czech Republic (39) is five times that in the typical school in Canada (8) (Table D7.1). In most other countries the ratio varies between 10 and 20.

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- While nearly all lower secondary students enrolled in schools that use computers have access to the Internet in Canada, Finland and Iceland, nearly six out of ten students in Belgium (French Community), the Czech Republic and Hungary are in schools with no Internet access (Table D7.2).

OUTCOMES OF EDUCATION

Wide variations in student achievement feed into unequal prospects in adulthood.

- Wide differences between countries in mathematics achievement appear early on in children's schooling, and tend to increase as schooling progresses. The difference between mathematics achievement in Japan and Korea on the one hand, and the OECD average on the other, exceeds more than twice the typical progress in achievement over a school year (Table F1.1).
- Most countries which perform well in mathematics at the 4th grade do so also at the 8th grade, which underlines the importance of early success. However, some countries with comparatively low performance at the 4th grade make up for some of the difference by the 8th grade, while others with good 4th grade results fall behind by the 8th grade (Table F1.1).

While successful in raising levels of science achievement, education systems find it more difficult to sustain the strong positive views that young children display towards science.

- Fourth-grade students generally have positive attitudes towards science. There is, however, a marked decline in positive attitudes as students progress through the education system, particularly in the two countries with the highest level of science achievement, Japan and Korea (Table F2.1).
- Those 4th grade students with the most positive attitudes towards science show the highest achievement levels, a relationship which is stronger among boys than among girls (Table F2.2). Among older students, the relationship between attitudes and achievement is more varied, and many students achieve well despite reporting negative attitudes towards science (Table F2.1).

Better education brings significant rewards, in terms of employment and pay prospects.

- The labour-force participation rates of men are generally higher for those with higher educational qualifications, with the exception of Mexico and Turkey where the trend is less pronounced (Table E1.1).
- The difference in labour-force participation by level of educational attainment is even wider for women than for men, although the gender gap in participation decreases with increasing educational attainment (Tables E1.1, E1.2).
- The level of education that adds most to individuals' earnings is university, whose graduates typically earn between 20 and 100 per cent more than upper secondary graduates by mid-career (Table E5.1).

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	Financial and human resources invested in education[1]														Participation in education[1]							Learning environment and organisation of schools		
	Public expenditure for educational institutions as a percentage of GDP	Index of change in public expenditure for educational institutions, 1996 (1990 = 100)	Percentage of expenditure on educational institutions from private sources (initial sources of funds)	Subsidies as a percentage of all public expenditure on tertiary education	Annual expenditure per student in equivalent US dollars			Index of change in annual expenditure per student, 1996 (1990 = 100)		Teacher salaries in public lower secondary education after 15 years of experience[2]		Ratio of students to teaching staff			School expectancy (in years) under current conditions (education for children under age 5 excluded)	Continuing education and training		Net entry rates in tertiary-level education (Tertiary-type A)	Survival rates (Tertiary-type A)	Expected years of tertiary education for all 17-year-olds	Index of change in tertiary enrolment, 1997 (1990 = 100)	Number of teaching hours per year for teachers in public lower secondary education[1]	Total intended instruction time in hours per year for students 13 years of age[3]	Median ratio of students to computers in lower secondary schools, 1998-99
					Primary education	Secondary education	All tertiary education	Primary and secondary education	Tertiary education	Annual statutory teacher salary in equivalent US dollars	Salary per statutory teaching hour in equivalent US dollars	Primary education	Secondary education	All tertiary education		Percentage of 25-64 year-olds participating	Expected hours of training outside formal education over the lifecycle							
OECD countries																								
Australia	4.3	120	19	27	3 633	5 570	11 240	114	114	36 175	45	17.9	15.5	m	20.0	m	m	53	65	3.1	134	802	1 027	m
Austria	6.0	129	m	16	6 258	8 213	9 993	120	109	28 464	44	12.7	9.5	m	16.0	m	m	28	53	2.2	121	651	987	m
Belgium	4.8	112	7	24	3 813	6 938	7 834	m	m	27 932	40	14.0	m	m	17.3	20	1 020	28	63	2.4	m	m	m	m
Canada	5.4	108	11	35	m	m	14 809	104	93	m	m	21.0	22.1	m	16.7	30	m	m	m	2.7	115	m	m	8
Czech Republic	4.5	m	13	9	1 954	3 641	5 351	m	m	9 342	13	19.2	15.4	13.5	15.1	m	m	22	79	1.3	161	695	811	39
Denmark	6.5	124	5	36	6 596	7 198	7 294	m	m	31 000	48	m	m	m	17.5	m	m	30	67	2.4	124	644	900	11
Finland	6.3	97	m	18	4 639	5 065	7 145	86	98	27 942	58	17.7	m	m	17.9	m	m	58	75	3.8	138	485	855	12
France	5.8	117	6	8	3 621	6 564	7 177	113	100	29 615	47	m	m	m	16.6	m	m	m	55	2.6	130	629	975	21
Germany	4.5	m	21	12	3 490	6 149	9 466	m	m	38 640	53	21.6	15.5	12.4	16.8	m	m	28	72	2.0	106	732	921	m
Greece	3.5	m	m	m	2 351	2 581	3 990	m	m	24 337	39	13.6	11.5	26.3	15.5	m	m	m	m	2.4	m	629	1 064	m
Hungary	4.5	61	12	13	2 035	2 093	5 430	m	m	11 066	20	11.0	10.8	11.8	15.6	m	m	45	77	1.6	205	555	902	30
Iceland	5.1	m	m	27	m	m	m	m	m	m	m	14.1	m	9.3	17.7	m	m	38	m	2.0	133	m	m	18
Ireland	4.5	139	8	27	2 567	3 866	8 134	136	107	36 151	49	22.6	16.3	16.6	15.9	18	1 219	28	77	2.3	158	735	957	m
Italy	4.6	82	3	13	m	m	m	95	70	25 773	42	m	m	m	15.7	m	m	42	35	2.3	135	612	1 105	20
Japan	3.6	m	m	m	5 202	5 917	10 157	m	m	41 201	m	21.4	15.7	11.8	m	m	m	36	90	m	m	m	875	19
Korea	4.4	m	m	m	3 308	3 518	6 844	m	m	39 921	80	m	m	m	15.5	m	m	43	m	3.3	157	502	867	m
Luxembourg	4.2	m	m	52	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	14
Mexico	4.5	137	m	8	935	1 726	4 519	166	101	14 708	18	m	m	m	12.2	m	m	21	68	0.9	128	832	1 167	m
Netherlands	4.3	106	3	26	3 335	5 152	9 989	110	89	31 380	34	17.8	17.6	18.7	17.2	31	2 027	52	70	2.2	105	910	1 067	m
New Zealand	6.2	123	m	43	m	m	m	m	m	32 260	33	24.7	21.0	15.5	17.1	38	1 714	68	76	2.9	147	985	988	9
Norway	6.6	115	m	36	6 315	6 973	10 108	114	94	23 879	39	12.6	m	13.0	17.7	m	m	56	m	3.0	142	611	855	12
Poland	5.8	m	m	4	1 435	m	4 395	m	m	m	m	m	m	m	15.6	13	1 024	m	m	2.0	223	m	m	m
Portugal	5.8	147	m	4	3 248	4 264	m	153	56	26 288	42	m	m	m	16.9	m	m	m	49	2.2	268	629	878	m
Spain	4.7	119	17	10	3 180	4 274	5 166	125	127	32 144	59	16.0	12.1	17.2	17.3	m	m	41	m	2.7	144	545	957	m
Sweden	6.8	m	2	28	5 491	5 437	12 981	m	m	23 896	m	13.4	15.3	9.0	19.4	50	m	59	m	2.4	149	m	741	m
Switzerland	5.4	106	m	4	6 237	9 045	16 376	101	86	51 361	60	16.3	14.0	m	16.2	39	1 761	m	74	1.6	113	860	m	m
Turkey	m	m	m	m	m	m	2 397	m	m	m	m	m	m	m	9.7	m	m	20	55	1.2	196	360	720	m
United Kingdom	4.2	113	m	35	3 206	4 609	8 169	101	84	38 010	48	m	m	m	17.1	38	1 693	48	81	2.5	188	798	720	m
United States	5.2	m	m	16	5 718	7 230	17 466	m	m	32 713	34	16.5	15.9	14.6	16.8	37	1 680	44	63	3.5	106	964	m	m
Country mean	**5.1**		**10**	**21**	**3 851**	**5274**	**8601**			**28 519**	**42**	**17.1**	**15.2**	**14.6**	**16.4**			**40**		**2.3**	**149**	**700**	**937**	
WEI participants																								
Argentina	3.7	m	m	m	1 224	1 575	11 552	m	m	15 773	m	24.8	x	m	15.4	m	m	48	m	2.4	m	m	m	m
Brazil	4.8	m	m	m	859	1 002	10 791	m	m	10 998	m	27.3	x	m	14.8	m	m	m	m	0.7	m	m	m	m
Chile	3.2	m	m	m	2 115	2 292	8 775	m	m	15 233	m	29.4	x	m	14.2	m	m	32	m	1.5	m	m	m	m
China	m	m	m	m	m	m	m	m	m	m	m	m	x	m	10.1	m	m	4	m	0.3	m	m	m	m
Egypt	m	m	m	m	m	m	m	m	m	m	m	14.2	x	m	m	m	m	m	m	m	m	m	m	m
India	m	m	m	m	160	253	m	m	m	m	m	m	x	m	m	m	m	m	m	m	m	m	m	m
Indonesia	m	m	m	m	m	m	m	m	m	4 360	m	m	x	m	9.6	m	m	8	m	0.6	m	m	m	m
Israel	7.5	m	m	m	m	m	m	m	m	m	m	m	x	m	m	m	m	49	m	m	199	m	m	m
Jordan	m	m	m	m	706	807	m	m	m	11 594	m	20.7	x	m	11.6	m	m	24	m	1.0	m	m	m	m
Malaysia	4.4	m	m	m	820	1334	7 793	m	m	19 819	m	21.6	x	m	12.1	m	m	15	m	0.9	m	m	m	m
Paraguay	3.7	m	m	m	482	690	19 271	m	m	m	m	19.6	x	m	11.2	m	m	m	m	m	m	m	m	m
Philippines	3.0	m	m	m	373	570	2 170	m	m	8 382	m	38.4	x	m	12.3	m	m	49	m	1.6	m	m	m	m
Sri Lanka	m	m	m	m	m	m	m	m	m	m	m	m	x	m	m	m	m	3	m	m	m	m	m	m
Thailand	4.5	m	m	m	m	m	m	m	m	15 759	m	20.9	x	m	m	m	m	38	m	1.6	m	m	m	m
Uruguay	2.6	m	m	m	974	1 221	2 394	m	m	7 458	m	20.7	x	m	14.9	m	m	26	m	1.7	m	m	m	m
Zimbabwe	6.5	m	m	m	353	647	m	m	m	m	m	37.2	x	m	9.6	m	m	m	m	m	m	m	m	m
Tables	**B1.1a**	**B1.2**	**B2.1**	**B3.1b**	**B4.1**	**B4.1**	**B4.1**	**B4.3**	**B4.3**	**D1.1b**	**D1.1b**	**B7.1**	**B7.1**	**B7.1**	**C1.1**	**C1.4**	**C1.4**	**C3.1**	**C4.1**	**C3.2**	**C3.4**	**D3.1**	**D4.1a**	**D7.1**
Pages	54	58	67	80	94	94	94	96	96	214	214	119	119	119	134	137	137	157	172	158	160	229	237	251

m = missing data

1 Figures for Belgium refer to the Flemish Community of Belgium

2 Figures for Belgium refer to the French and Flemish communities of Belgium

3 Data are given for England. Results for Scotland are available separately

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Individual and labour market outcomes of education

Educational attainment of the adult population and current graduation rates				Index of differentials, tertiary-type A to upper secondary (25-64 year-olds)		Ratio of unemployment rates, tertiary-type A to upper secondary (25-64 year-olds)[2]		
Upper secondary attainment or higher (25-64 year-olds)[1]	Current upper secondary graduation rate	Tertiary-type A attainment or higher (25-64 year-olds)[1]	First-time tertiary graduation rates (Tertiary-type A)	Men	Women	Men	Women	
								OECD countries
56	m	17	26	144	154	0.5	0.5	Australia
73	96	6	14	m	m	0.7	0.9	Austria
57	m	12	m	m	m	0.5	0.4	Belgium
80	72	19	29	146	164	0.5	0.5	Canada
85	80	10	11	178	172	0.5	0.4	Czech Republic
78	m	5	m	139	136	1.2	1.2	Denmark
68	89	13	30	189	179	0.4	0.4	Finland
61	87	11	24	176	161	0.7	0.7	France
84	93	14	16	156	156	0.5	0.5	Germany
44	83	11	m	m	m	0.8	0.7	Greece
63	90	13	25	213	154	0.3	0.3	Hungary
55	92	16	25	m	m	0.9	0.5	Iceland
51	87	11	25	m	m	0.7	0.8	Ireland
41	m	9	15	173	129	0.7	0.8	Italy
80	96	18	28	m	m	0.6	1.0	Japan
65	90	17	26	m	m	0.6	0.5	Korea
m	62	m	m	m	m	m	m	Luxembourg
21	30	12	10	m	m	1.2	0.6	Mexico
64	93	24	35	136	141	0.9	0.6	Netherlands
73	97	13	33	148	143	0.9	0.9	New Zealand
83	m	24	38	138	140	0.6	0.5	Norway
54	m	11	25	m	m	0.3	0.2	Poland
20	56	7	18	188	189	0.5	0.8	Portugal
33	67	14	28	171	151	0.9	0.7	Spain
76	79	13	25	135	125	0.5	0.4	Sweden
81	84	14	20	145	157	m	m	Switzerland
18	46	6	10	m	m	0.8	0.4	Turkey
60	m	15	35	157	188	0.4	0.7	United Kingdom
86	74	27	33	183	180	0.4	0.4	United States
61	**79**	**14**	**24**					**Country mean**
								WEI participants
m	37	m	9	m	m	m	m	Argentina
m	38	m	m	m	m	0.8	0.2	Brazil
m	52	m	11	m	m	0.6	0.5	Chile
m	m	m	3	m	m	m	m	China
m	m	m	14	m	m	m	m	Egypt
m	m	m	m	m	m	m	m	India
m	28	m	m	m	m	2.1	2.6	Indonesia
m	m	m	26	m	m	m	m	Israel
m	m	m	13	m	m	m	m	Jordan
m	59	m	6	m	m	0.5	0.7	Malaysia
m	21	m	m	m	m	1.0	0.6	Paraguay
m	67	m	23	m	m	1.3	1.6	Philippines
m	m	m	m	m	m	m	m	Sri Lanka
m	47	m	12	m	m	m	m	Thailand
m	m	m	6	m	m	0.3	0.3	Uruguay
m	m	m	m	m	m	m	m	Zimbabwe
A2.2a	**C2.2**	**A2.2b**	**C4.2**	**E5.1**	**E5.1**	**E1.2**	**E1.2**	**Tables**
35	147	36	173	297	297	270	270	Pages

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READER'S GUIDE

COVERAGE OF THE STATISTICS

Although a lack of data still limits the scope of the indicators in many countries, the coverage extends, in principle, to the entire national education system regardless of the ownership or sponsorship of the institutions concerned and regardless of education delivery mechanisms. With one exception described below, all types of students and all age-groups are meant to be included: children (including those classified as exceptional), adults, nationals, foreigners, as well as students in open distance learning, in special education programmes or in educational programmes organised by ministries other than the Ministry of Education, provided the main aim of the programme is the educational development of the individual. However, vocational and technical training in the workplace, with the exception of combined school and work-based programmes that are explicitly deemed to be parts of the education system, is not included in the basic education expenditure and enrolment data.

Educational activities classified as "adult learning" or "non-regular" are covered, provided that the activities involve studies or have a subject-matter content similar to "regular" education studies or that the underlying programmes lead to potential qualifications similar to corresponding regular educational programmes. Courses for adults that are primarily for general interest, personal enrichment, leisure or recreation are excluded.

CALCULATION OF INTERNATIONAL MEANS

For many indicators a country mean is presented and for some an OECD total.

The *country mean* is calculated as the unweighted mean of the data values of all countries for which data are available or can be estimated. The country mean therefore refers to an average of data values at the level of the national systems and can be used to answer the question of how an indicator value for a given country compares with the value for a typical or average country. It does not take into account the absolute size of the education system in each country.

The OECD *total* is calculated as a weighted mean of the data values of all countries for which data are available or can be estimated. It reflects the value for a given indicator when the OECD area is considered as a whole. This approach is taken for the purpose of comparing, for example, expenditure for individual countries with those of the entire OECD area for which valid data are available, with this area considered as a single entity.

Note that both the country mean and the OECD total can be significantly affected by missing data. Given the relatively small number of countries, no statistical methods are used to compensate for this. In cases where a category is not applicable in a country or where the data value is negligible for the corresponding calculation, the value zero is imputed for the purpose of calculating means. In cases where a data point represents the ratio of two values, neither of which is applicable for a particular country, the mean does not take into account this country.

ISCED LEVELS OF EDUCATION

The classification of the levels of education is based for the first time on the revised International Standard Classification of Education (ISCED/1997). The biggest change between the revised ISCED and the old ISCED is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes using multiple classification criteria. ISCED is an instrument for compiling statistics on education internationally and distinguishes among six levels of

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education. The *Glossary and the notes in Annex* 3 (*Indicator* A3) describe the ISCED levels of education in detail and Annex 1 shows corresponding theoretical durations and the typical starting and ending ages of the main educational programmes by ISCED level.

SYMBOLS FOR MISSING DATA

Four symbols are employed in the tables and graphs to denote missing data:

a Data not applicable because the category does not apply.
m Data not available.
n Magnitude is either negligible or zero.
x Data included in another category/column of the table.

COUNTRY CODES

OECD *Member countries*

Australia	AUS	Korea	KOR
Austria	AUT	Luxembourg	LUX
Belgium	BEL	Mexico	MEX
Canada	CAN	Netherlands	NLD
Czech Republic	CZE	New Zealand	NZL
Denmark	DNK	Norway	NOR
Finland	FIN	Poland	POL
France	FRA	Portugal	PRT
Germany	DEU	Spain	ESP
Greece	GRC	Sweden	SWE
Hungary	HUN	Switzerland	CHE
Iceland	ISL	Turkey	TUR
Ireland	IRL	United Kingdom	UKM
Italy	ITA	United States	USA
Japan	JPN		

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A

CONTEXT OF EDUCATION

In the interpretation of international differences in the structures, processes and outcomes of education, the context in which education systems operate has to be taken into account. It is particularly important to know about the existing supply of human knowledge, competence and skills to which education systems seek to add. These factors can be set alongside the current output of education systems, shown especially in Indicators C2 and C4. As far as the demand for education is concerned, demographic patterns determine the potential client-base, since they reflect the numbers of people in the age groups that participate most in education, while the changing requirements of the labour market influence the demand for education from individuals and society.

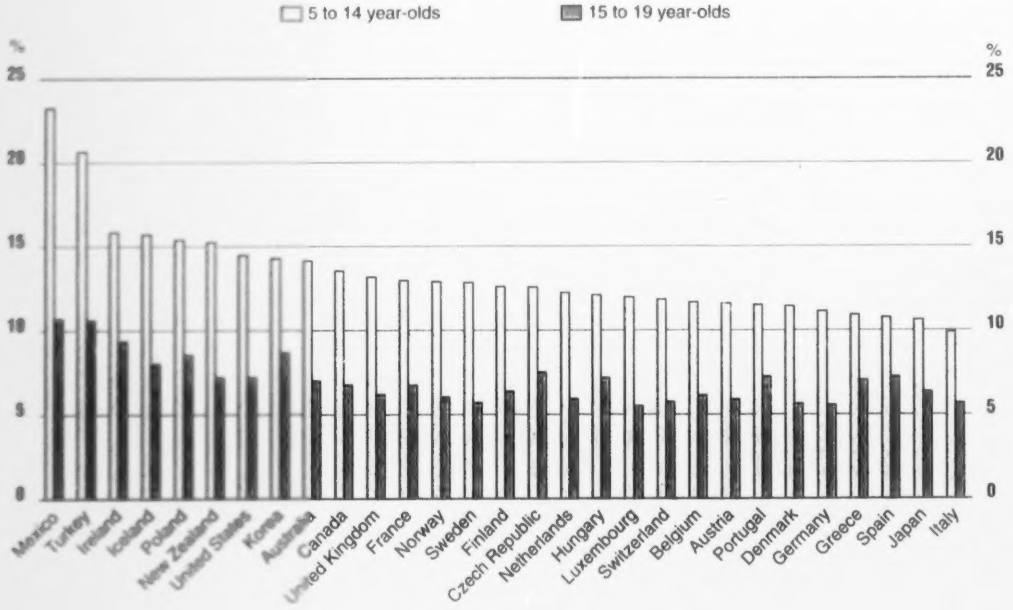
Indicator A1 shows the demographic background to educational provision, in terms of the trend in the size of youth cohorts at the "expected" ages of participation in various stages of education. This indicator must be qualified with two observations. First, participation rates among age groups before and after compulsory schooling are by no means constant. Secondly, participation is not always at the "expected" age, and is becoming less so as lifelong learning becomes commonplace. Nevertheless, demographic data are important in forecasting costs both within compulsory education and, in combination with plans or expectations for particular patterns of participation, outside it.

On the "human capital" side, there are several ways of estimating the existing stock of human knowledge and skills, sometimes referred to as human capital. The most common is the educational attainment – the highest level of education completed – of members of the adult population. This is the most easily measurable proxy for the overall qualifications of the workforce, and is a factor which plays an important role in shaping economic outcomes and the quality of life. **Indicator A2**, which compares the attainment of national populations, is thus an indicator of the stock of human capital. It shows, significantly, how attainment has been rising over time, by comparing differences between younger and older people, educated in different decades. It also looks at gender differences in education, and shows clearly how these have been narrowing over time. Finally, this indicator shows that a second way of estimating human capital is by measuring it more directly – by testing adults for certain core abilities, such as literacy skill. This part, based on the results of the International Adult Literacy Survey, looks at the degree to which adults exhibit a skill that is essential both for work and for full participation in society.

RELATIVE SIZE OF THE SCHOOL-AGE POPULATION

- The size of the youth population in a given country shapes the potential demand for initial education and training. The higher the number of young people, the greater the potential demand for educational services. Among countries of comparable wealth, a country with a relatively large youth population would have to spend a higher percentage of its GDP on education in order to ensure the educational opportunities that young persons in other countries enjoy.
- The chart illustrates the proportion of the population in two age-bands roughly corresponding to typical ages of students in primary/lower secondary and upper secondary education.
- In Italy only 16 per cent of the population are between the ages of 5 and 19. This is in contrast to Mexico and Turkey where these figures are 34 and 31 per cent respectively.

Chart A1.1. **Percentages of 5 to 14 and 15 to 19 year-olds in the total population (1998)**



Countries are ranked in descending order of the percentage of 5 to 14 year-olds in the total population.

Source: OECD.

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POLICY CONTEXT

This indicator shows the relative size of the school-age population in primary, secondary and tertiary education and forecasts these up to the year 2008.

The number of young people in a population influences both the rate of renewal of labour-force qualifications and the amount of resources and organisational effort which a country must invest in its education system. Other things being equal, countries with larger proportions of young people in the population must allocate a larger proportion of their national income to initial education and training than those with smaller youth populations but similar participation rates.

Projections of the relative size of the school-age population help to predict changes in the number of students and resources needed. However, these predictions have to be interpreted with caution. At the lowest level of education enrolment rates are close to 100 per cent (see Indicator C1) and the number of students closely follows demographic changes. This is not the case in upper secondary and higher education. In almost all countries the growth in enrolment rates has outweighed the decrease in cohort sizes.

EVIDENCE AND EXPLANATIONS

Differences between countries in the relative size of the youth population have diminished since 1990 but there are still notable contrasts.

The proportion of 5-14 year-olds in the total population, who are typically enrolled in primary and lower secondary programmes, varies between 11 and 16 per cent in most OECD countries; the proportion of 20-29 year-olds is in general slightly larger (Table A1.1). Although differences between countries in the relative size of the youth population have diminished since 1990, there are still notable contrasts. In Italy only 10 per cent of the population are between the ages of 5 and 14. This is in contrast to Mexico and Turkey where these figures are 23 and 21 per cent respectively. Two of the least prosperous countries in the OECD thus have both fewer resources to allocate to education and more children between whom to distribute these resources.

The sharp decline in youth populations during the 1970s and 1980s has generally slowed down...

Taking the size of the population in 1998 as the baseline (index = 100), Chart A1.2 illustrates how the population in three age-bands (roughly corresponding to typical ages of students in primary/lower secondary, upper secondary and tertiary education) has evolved since 1990 and how it is expected to develop over the next decade.

... and population forecasts suggest that the proportion of 5-14 year-olds will stabilise in many OECD countries.

The sharp decline in the population of 5-14 year-olds that occurred in many OECD countries during the 1970s and 80s has generally slowed and population forecasts suggest that over the next decade the proportion of 5-14 year-olds will stabilise in many OECD countries. The Czech Republic and Poland are the only countries in which the proportion of 5-14 year-olds – currently 13 and 15 per cent respectively – will decline by more than 25 per cent over the next decade. It is worthy of note that in Germany, Greece, Hungary and Sweden the decline will still exceed 14 per cent.

Although the decline in the youth population has somewhat eased the pressure on expanding school systems at the lower levels of education, most countries still feel the pressure of higher enrolment rates in post-compulsory schooling (Indicator C3).

A declining youth population is also no longer the rule. In 12 OECD countries the number of 5-14 year-olds has been rising by between 6 and 14 per cent over the period 1990-1998. These rises will feed through into further rises in

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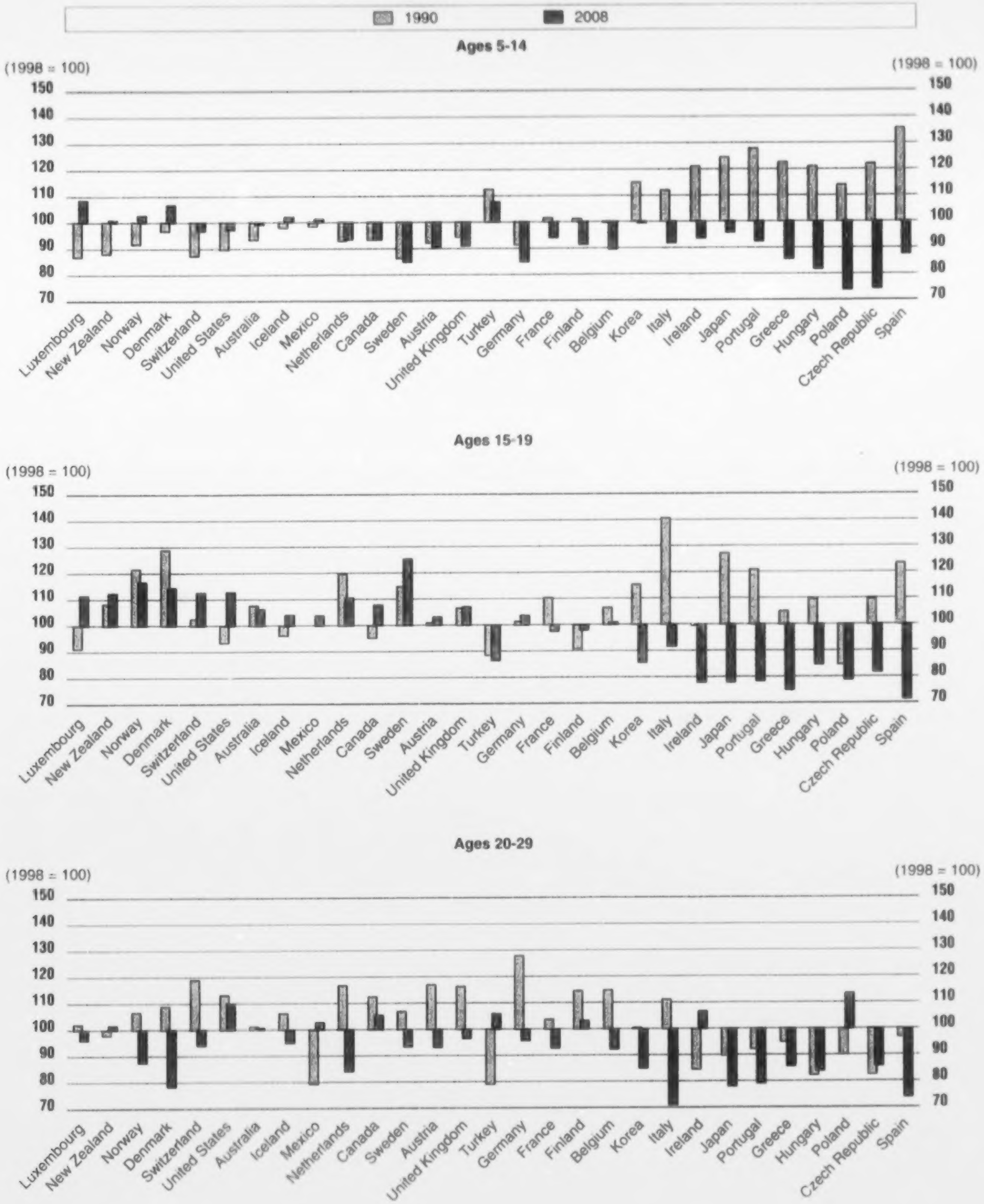
Chart A1.2. **Change in the size of the youth population since 1990 and expected change until 2008 (1998 = 100), by age group (1998)**



Countries are ranked in ascending order of the difference on the size of the 5-14 year-olds between the years 1990 and 2008.

Source: OECD.

demand for post-compulsory education in the years ahead. When populations of these ages were falling it was relatively easy to expand participation rates – but can these higher levels now be sustained? The countries where the population of 5-14 year-olds is expected to increase by more than 5 per cent from 1998 year to 2008 year are Denmark, Luxembourg and Turkey; and whereas Denmark and Luxembourg currently have a comparatively low proportion of 5-14 year-olds, in Turkey a comparatively high proportion is expected to grow further.

Among 20-29 year-olds, the typical age-band for tertiary education, a decline by more than 20 per cent in Denmark, Italy, Japan, Portugal and Spain will ease the pressure on tertiary spending. In Poland and the United States, by contrast, the population of 20-29 year-olds is expected to increase by 13 and 10 per cent respectively over the next decade putting considerable pressure on tertiary education systems. In Poland this pressure is combined with rapidly growing tertiary enrolment rates. In the early 1990s, Poland faced the second biggest growth in the OECD.

Student demography is a factor with a significant influence on the financial resources required for education.

The size of the youth population in a given country shapes the potential demand for initial education and training. The higher the number of young people, the greater the potential demand for educational services. Among countries of comparable wealth, a country with a relatively large youth population would have to spend a higher percentage of its GDP on education in order to ensure the educational opportunities that young persons in other countries enjoy. Conversely, if the relative size of the youth population is smaller, the same country could spend a lower percentage of its GDP on education and yet achieve similar results.

Chart B1.3A in Indicator B1 shows the effects on educational spending of differences between countries in the relative size of the youth population. In Italy, the country with the lowest proportion of 5-29 year-olds, educational expenditure as a percentage of GDP could be expected to rise by 22 per cent if the relative size of the youth population in these countries were at the level of the OECD average. In Mexico, by contrast, expenditure on education could be expected to be 23 per cent lower if the proportions of 5-29 year-olds were at the level of the OECD average. In other words, other things being equal, Mexico would have to increase its investment in educational institutions in order to reach OECD average spending per student as a percentage of GDP.

DEFINITIONS

Data are derived from the 1998 OECD Demographic Database and from the World Education Indicators Pilot Project. Projections are based on the UN Population Database.

Columns 1-3 in Table A1.1 show the percentage of 5-14, 15-19 and 20-29 year-olds in the total population. Columns 4-9 show the change in the sizes of the populations 5-14, 15-19 and 20-29 years of age over the period 1990-2008. The changes are expressed as percentages relative to the size of the population in 1998 (index = 100). The statistics cover residents in the country, regardless of citizenship and of educational or labour market status. Column 10 shows the number of students enrolled as a percentage of the employed population 25 to 64 years of age. Chart A1.2 shows the development of the index provided in columns 4-9 of Table A1.1 over the period 1990-2008.

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Table A1.1 **Number of people at the age of basic, upper secondary and tertiary education as a percentage of the total population (1998)**

	Percentage of the population			Change in the size of the population (1998 = 100)						Number of students enrolled as a percentage of the employed population 25 to 64 years of age[1]
				Ages 5-14		Ages 15-19		Ages 20-29		
	Ages 5-14	Ages 15-19	Ages 20-29	1990	2008	1990	2008	1990	2008	
OECD countries										
Australia	14	7	15	93	99	108	106	101	101	82
Austria	12	6	14	92	91	101	103	117	93	54
Belgium	12	6	13	100	89	106	101	115	92	m
Canada	14	7	14	93	93	95	108	112	105	59
Czech Republic	13	8	16	122	74	110	82	82	86	55
Denmark	11	6	14	97	107	129	114	109	78	55
Finland	13	6	12	101	91	91	98	114	103	56
France	13	7	14	101	94	110	97	104	93	69
Germany	11	6	13	91	85	101	103	128	96	56
Greece	11	7	15	123	86	105	75	95	86	58
Hungary	12	7	16	121	82	110	85	82	84	72
Iceland	16	8	15	98	102	96	104	106	95	74
Ireland	16	9	16	121	94	99	78	84	107	85
Italy	10	6	15	112	92	141	92	111	71	61
Japan	11	6	15	124	96	127	78	90	78	47
Korea	14	9	18	115	99	115	85	100	85	66
Luxembourg	12	6	13	87	109	91	111	102	96	m
Mexico	23	11	19	99	101	100	104	79	103	m
Netherlands	12	6	14	93	94	120	110	117	84	57
New Zealand	15	7	14	88	101	108	112	98	101	78
Norway	13	6	14	92	103	122	117	107	88	57
Poland	15	9	15	114	74	85	79	90	113	74
Portugal	12	7	16	128	92	121	78	92	79	65
Spain	11	7	17	135	88	123	71	97	74	81
Sweden	13	6	13	86	85	115	125	107	93	65
Switzerland	12	6	13	87	97	102	112	119	94	44
Turkey	21	11	19	112	108	89	86	79	106	81
United Kingdom	13	6	14	94	91	106	107	116	96	65
United States	14	7	13	90	97	93	113	113	110	64
Country mean	**13**	**7**	**15**	**104**	**93**	**108**	**98**	**102**	**93**	**67**
WEI participants[2]										
Argentina	19	9	16	99	105	84	102	82	115	m
Brazil	22	11	18	102	94	86	95	92	113	m
Chile	19	8	17	88	101	99	117	102	106	m
China	19	7	18	90	85	127	113	100	89	m
Egypt	26	12	16	87	99	75	112	87	138	m
India	25	9	17	89	101	88	114	88	119	m
Indonesia	22	11	18	100	99	96	100	84	106	m
Jordan	27	12	20	80	126	81	128	64	121	m
Malaysia	23	10	18	89	109	82	117	90	123	m
Paraguay	26	10	17	81	115	77	127	86	139	m
Philippines	24	10	18	88	110	81	115	83	123	m
Russian Federation	m	m	m	104	67	89	83	104	116	m
Sri Lanka	23	11	19	110	92	85	83	96	115	m
Thailand	18	10	19	108	87	106	90	93	94	m
Uruguay	16	8	15	100	105	99	103	89	101	m
Zimbabwe	29	11	16	84	98	84	121	84	130	m

1. Austria and Greece year of reference 1997
2. For all WEI participants year of reference 1997

Source OECD Database See Annex 3 for notes

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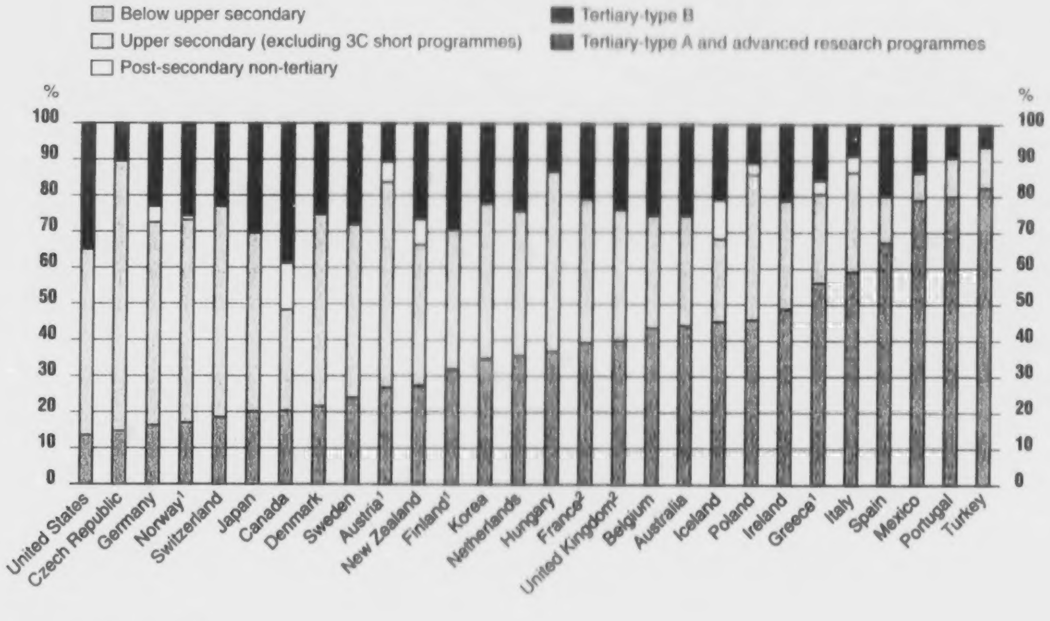
EDUCATIONAL ATTAINMENT OF THE ADULT POPULATION

- The level of educational attainment in the population is a commonly used proxy for the stock of "human capital". This indicator shows the level of educational attainment of the population. It serves as a backdrop for comparing current participation and completion rates between countries.
- The International Standard Classification of Education (ISCED-97) is used for the first time to define the level of education. A new level, post-secondary non-tertiary (level 4), has been introduced in ISCED-97 to cover programmes that straddle the boundary between upper secondary and tertiary education.
- In Greece, Italy, Mexico, Portugal, Spain and Turkey more than half of the population aged 25-64 years have not completed upper secondary education. This proportion is equal to or exceeds 80 per cent in Canada, the Czech Republic, Germany, Japan, Norway, Switzerland and the United States.

Chart A2.1. **Distribution of the population 25 to 64 years of age by the highest completed level of education (1998)**



1. Year of reference 1997.
2. Not all ISCED 3 programmes meet minimum requirements for ISCED 3C long programmes. For more information see Annex 3.

Countries are ranked in descending order of the percentage of the population who have completed at least upper secondary education.

Source: OECD.

POLICY CONTEXT

A well-educated and well-trained population is important for the social and economic well-being of countries and individuals. Education plays a role in providing individuals with the knowledge, skills and competencies to participate more effectively in society. Education also contributes to an expansion of scientific and cultural knowledge.

This indicator shows a profile of the educational attainment of the adult population and labour force...

The level of educational attainment in the population is a commonly used proxy for the stock of "human capital", that is, the skills available in the population and the labour force. This indicator shows the level of educational attainment of the population and the labour force. It serves as a backdrop for comparing current participation and completion rates between countries. Data are broken down by gender and by age group.

... providing a proxy for the knowledge, skills and competencies maintained in different countries.

An alternative to measuring the stock of human capital via educational qualifications is a direct assessment of adults' skills. Measures of educational attainment do not certify a set of skills that is consistent across countries and they ignore less formal learning. The International Adult Literacy Survey (IALS) was designed to measure adult literacy skills by the assessment of proficiency levels, using test materials derived from specific contexts within countries. This indicator examines both 1) the variation in assessed literacy between countries, and 2) the variation in literacy skills within different levels of educational attainment.

This indicator also examines the extent to which the measured skills of adults vary in relation to their educational attainment.

EVIDENCE AND EXPLANATIONS

In 17 out of 28 OECD countries more than 60 per cent of the population aged 25 to 64 have completed at least upper secondary education (Table A2.2*a*). Upper secondary completers are those who have completed educational programmes at ISCED-97 levels 3A or 3B, or long programmes at ISCED-97 level 3C. This proportion is equal to or exceeds 80 per cent in Canada, Czech Republic, Germany, Japan, Norway, Switzerland and the United States. In other countries, especially in southern Europe, the educational structure of the adult population shows a different profile: in Greece, Italy, Mexico, Portugal, Spain and Turkey more than half of the population aged 25-64 years has not completed upper secondary education.

Countries differ widely in the distribution of educational attainment across their populations.

A comparison between the distribution of educational attainment in the labour force aged 25 to 64, and the distribution of educational attainment in the total population in the same age range shows a higher percentage of people in the labour force with upper secondary and university qualifications (see Tables A2.1*a* and A2.1*b*). Across OECD countries, an average of 63 per cent of the adult population have completed at least full upper secondary education – but in the adult labour force this figure is 68 per cent. In Belgium, Hungary and Italy, upper secondary attainment in the adult population and in the labour force differs by 10 per cent or more.

Educational attainment is generally higher among people in the labour force than among adults of working age outside it.

A comparison of the attainment of the population aged 25-34 years with that of the age group 55-64 shows that the proportion of individuals who have not completed upper secondary education has been shrinking in all OECD countries. This is especially striking in countries whose adult population generally has a lower attainment level. In younger age groups, differences between countries in the level of educational attainment are less pronounced. Many countries currently showing low attainment in the adult population are expected to move

Differences in educational attainment between younger and older people offer an indirect measure of the evolution of the stock of human capital.

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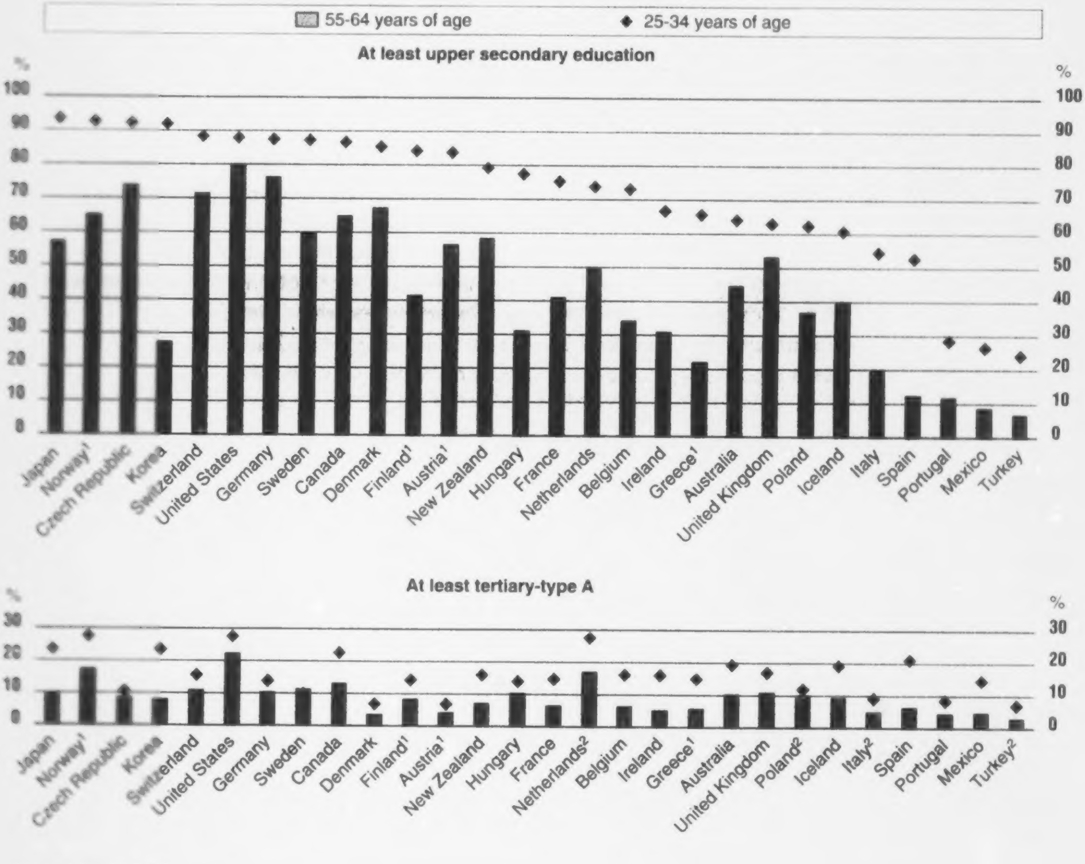
closer to those with higher attainment levels. In Greece, Korea, Mexico, Spain and Turkey the proportion of individuals aged 25-34 with at least upper secondary attainment is more than three times as high as in the age group 55-64.

There has been an increase in the proportion of young people who have attained a qualification equivalent to tertiary-type A *and advanced research programmes.*

The proportion of 25-64 year-olds who have completed tertiary-type A and advanced research programmes ranges among OECD countries from less than 10 per cent in Austria, Denmark, Italy, Portugal and Turkey to more than 20 per cent in the Netherlands, Norway and the United States. However, certain countries have also a vocational tradition at the tertiary level (tertiary-type B). The proportion of persons who have attained tertiary-type B level exceeds 13 per cent in Belgium, Canada, Denmark, Finland, Japan, New Zealand and Sweden.

Chart A2.2. **Percentage of the population that has attained at least upper secondary/ tertiary-type A level of education, by age group (1998)**



1. Year of reference 1997.
2. The level of educational attainment of tertiary-type A includes tertiary-type B.

Countries are ranked by the percentage of the population 25 to 34 years of age who have completed at least upper secondary education (see notes in Table A2.2a).

Source: OECD.

The rising skill requirements of labour markets, an increase in unemployment during recent years and higher expectations by individuals and society have influenced the proportion of young people who obtain at least a tertiary-type A qualification.

In Korea, although 8 per cent of people in the 55-64 age group have at least a tertiary-type A degree, among 25-34 year-olds the proportion has risen to 23 per cent (Table A2.2*b*). In Ireland, Korea, Mexico and Spain, the proportion of tertiary-type A and advanced research programmes graduates in this younger age group is more than three times as high as in the older cohort.

Men have on average a higher level of attainment than women...

In two out of three countries a larger proportion of men than women have attained at least upper secondary or tertiary-type A qualifications. This is the case in the older age groups in all countries except Ireland, Portugal and Sweden (Table A2.2*c*). In tertiary-type A or equivalent qualifications, the gap between men and women in the 25-64 age group in the OECD countries is 7 percentage points or more in Japan, Korea, Mexico and Switzerland. In Korea, Mexico and Switzerland, two out of three people holding a university-level qualification are men. In Japan the proportion of men is even higher (three out of four).

... but the trend has reversed among the younger generation in many countries.

Younger women, however, are far more likely than older women to have an upper secondary or even a tertiary-type A and advanced research programmes qualification. In 22 out of 27 countries, more than twice as many women aged 25 to 34 have earned at least tertiary-type A qualifications as women aged 55-64 years. In Japan, Korea and Switzerland, among 25-34 year-olds, there is more than a 5 per cent gap in tertiary-type A attainment rates in favour of men (19, 7 and 9 per cent respectively). Norway is the only country where tertiary-type A attainment rates favour women by a similar amount.

In 16 out of 28 countries a higher percentage of women than men in the age group 25 to 34 years hold an upper secondary qualification. This trend is also visible in tertiary education. Women already form the majority of people holding at least a tertiary-type A degree in seven out of 28 countries.

A second way of estimating human capital is by assessing literacy skills directly.

A second and more direct way of estimating human capital is by testing adults for certain core abilities, such as literacy. Respondents in the International Adult Literacy Survey were asked to carry out various tasks that might be encountered in everyday life. Tables A2.3*a* to A2.3*c* present the results for the document scale of the International Adult Literacy Survey, which tested the knowledge and skills required to locate and use information contained in various formats such as official forms, timetables, maps and charts. Performance at literacy level 3 is generally considered desirable in order to avoid difficulties in coping with social and economic life in a modern democratic society. The proportion of the population performing at levels 1 and 2 can therefore be taken to represent those persons below the desirable minimum. At least a quarter of adults in all countries tested performed below the desirable minimum, but in some countries the proportion at this level was 50 per cent or more (*e.g.* Ireland, New Zealand, Poland and the United Kingdom).

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Although mean literacy scores tend to be relatively close in most countries, the distribution of scores varies widely.

Table A2.3*b* shows mean scores and scores at the 10th, 25th, 75th and 90th percentiles. The mean score offers only partial information about adult literacy in a given country, since the mean can be relatively high even when there are many in the population with quite low scores. Although the mean scores tend to be relatively close in most countries, the distribution of scores varies widely. In the United States, for example, the average score is relatively high on the document scale, but the gap between the 10th and the 90th percentiles is among the widest. The Netherlands, by contrast, has a small interquartile range (the difference between the 25th and 75th percentiles), indicating a low variation within the country, and at the same time a high average score.

In some countries low education attainment levels are less of an impediment to achieving relatively high literacy levels than in others.

Countries differ substantially in the proportion of their adult population who has attained certain levels of education, and this may have some effect on the overall distribution of literacy. In general, countries with higher levels of educational attainment in the population have, on average, higher literacy scores and smaller gaps between the 10th and 90th percentiles (Table A2.3*c*). But there are still marked differences between countries at a given level of education. Countries vary most at the lowest levels of education. In some countries low educational attainment is less of an impediment to achieving relatively high literacy levels than in others. The difference between the average scores of individuals with university education and of those with less than upper secondary is highest in the United States and lowest in Germany. Adults with below upper secondary attainment in Germany have higher scores in document literacy than adults who have completed upper secondary or non-university education in the United States.

The overlap between literacy distributions at different levels of education shows that formal educational qualifications are an imperfect proxy for an individual's level of literacy skills.

High percentages of older adults show low levels of literacy.

Levels of literacy also vary between age groups. Older people in many countries have received less education than younger people (Table A2.2*a*), although many young people aged 16 to 25 may not have completed their education. Comparisons between age groups can provide some insight into the extent to which differences in literacy skills are a product of education systems or reflect the effects of experience after schooling. In all countries except the United States, adults aged 46 to 55 have lower levels of document literacy than those aged 16 to 25 (Chart A2.3). In Belgium (Flanders) and the Netherlands, for example, while three-quarters of younger adults demonstrate literacy at level 3 or above, only half of older adults achieve this level. In Poland, the proportion of adults who demonstrate level 3 or above is twice as high in the age group 16-25 as among 46-55 year-olds.

Country rankings differ in the two age groups. Both Germany and the United States fare relatively better in the age group 46 to 55: Germany is second only to Sweden in the proportion of older adults achieving level 3 or above on the document scale, but is average among the young population aged 16 to 25. The United States is average among older adults but second to last among the young.

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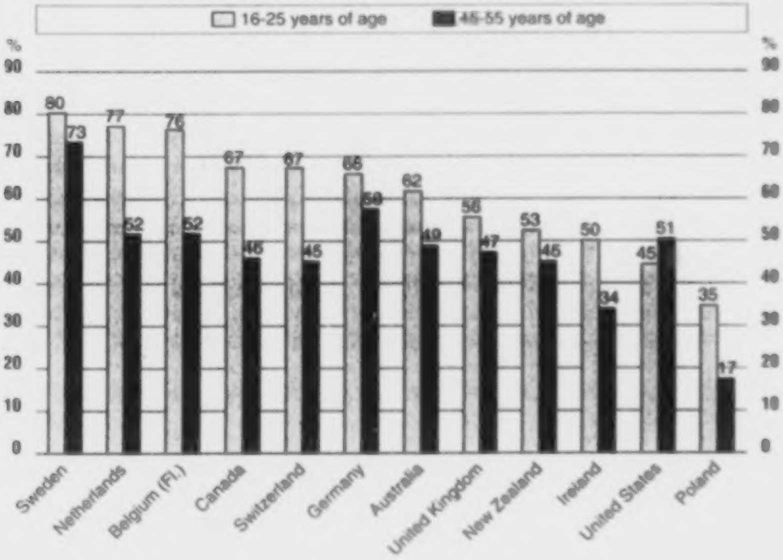
Chart A2.3. **Percentage of the population scoring at IALS literacy levels 3 or higher on the document scale by age group (1994-1995)**



Countries are ranked in descending order of the percentage of the population 16 to 25 years of age scoring at literacy levels 3 or higher.

Source: OECD and Statistics Canada/IALS.

Comparisons between age groups can provide some insight into the extent to which differences in literacy skills are a product of education systems or reflect the effects of experience after schooling.

DEFINITIONS

The attainment profiles shown here are based on the percentage of the population or of the labour force aged 25-64 years who have completed a specified highest level of education. The International Standard Classification of Education (ISCED-97) is used for the first time to define the level of education. A new level, post-secondary non-tertiary (level 4), has been introduced in ISCED-97 to cover programmes that straddle the boundary between upper secondary and tertiary education. In ISCED-76, such programmes were placed either in upper secondary (level 3) or tertiary education (level 5). Tertiary education in ISCED-97 comprises only two levels (level 5 and level 6) instead of the previous three levels (levels 5, 6 and 7). The new level 5 consists of programmes that do not lead directly to an advanced research qualification, while level 6 is now reserved for programmes leading to advanced research qualifications, such as a Ph.D. Tertiary education (level 5) is subdivided into two categories, ISCED 5A and 5B. ISCED 5A, tertiary-type A education, covers more theory-based programmes that give access to advanced research qualifications or professions with high skill requirements, while ISCED 5B, tertiary-type B education, covers more practical or occupationally specific programmes that provide participants with a qualification of immediate relevance to the labour market. Level 5 in ISCED-97 corresponds only partly to level 5 in ISCED-76, and level 6 in ISCED-97 does not correspond at all to level 6 in ISCED-76 (for more details see Annex 3).

Data are derived from National Labour Force Surveys…

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... and from the International Adult Literacy Survey conducted by the OECD *and Statistics Canada in* 1994/95.

Respondents to the International Adult Literacy Survey were asked to carry out various tasks that might be encountered in everyday life. Three scales of literacy were devised and tested: "prose literacy"(the knowledge and skills required to understand and use information from texts, such as editorials, news stories, poems and fiction); "document literacy" (the knowledge and skills required to locate and use information contained in various formats such as job applications, payroll forms, transportation timetables, maps, tables and graphics); and "quantitative literacy" (the knowledge and skills required to apply arithmetical operations to numbers embedded in printed materials, such as balancing a cheque-book, calculating a tip, completing an order form or determining the amount of interest on a loan from an advertisement). In Tables A2.3*a* to A2.3*c*, figures are included for "document literacy". However, results for the other two scales of literacy would be similar in most countries.

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Table A2.1a. **Distribution of the population 25 to 64 years of age by level of educational attainment (1998)**

	Pre-primary and primary education	Lower secondary education	Upper secondary education			Post-secondary non-tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes	All levels of education
	ISCED 0/1	ISCED 2	ISCED 3C Short	ISCED 3C Long / 3B	ISCED 3A	ISCED 4	ISCED 5B	ISCED 5A/6	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Australia	x(2)	44.0	a	9.6	21.0	x(5)	8.8	16.6	100
Austria[1]	x(2)	26.7	a	51.1	5.9	5.7	4.5	6.2	100
Belgium	20.3	23.0	a	7.4	24.0	x(4)	13.5	11.8	100
Canada	x(2)	20.3	x(5)	x(5)	27.9	12.9	20.2	18.6	100
Czech Republic	x(2)	14.7	a	43.8	31.1	x(5)	a	10.4	100
Denmark	0.1	21.4	a	47.6	5.6	x(5)	19.8	5.4	100
Finland[1]	x(2)	31.7	a	a	38.9	a	16.7	12.8	100
France	21.1	18.2	27.8	2.5	9.7	0.2	10.1	10.5	100
Germany	2.1	14.1	a	54.3	2.0	4.4	9.0	14.0	100
Greece[1]	45.4	9.0	1.4	1.4	23.3	3.9	4.2	11.3	100
Hungary	4.3	32.4	a	23.7	26.4	x(4)	x(9)	13.2	100
Iceland	2.4	35.7	7.1	a	22.9	11.0	5.0	15.9	100
Ireland	23.1	25.6	m	m	30.2	x(5,7)	10.5	10.6	100
Italy	25.5	30.9	2.6	5.2	22.5	4.6	x(8)	8.7	100
Japan	x(2)	20.1	a	x(5)	49.5	x(9)	12.7	17.7	100
Korea	18.6	16.0	a	x(5)	43.3	a	5.1	17.0	100
Mexico	58.7	20.1	a	7.7	x(2)	a	1.2	12.2	100
Netherlands	12.5	23.2	a	x(5)	40.1	x(8)	x(8)	24.2	100
New Zealand	x(2)	27.3	a	20.5	18.6	7.0	13.9	12.7	100
Norway[1]	0.2	16.7	a	38.6	17.6	1.0	2.1	23.7	100
Poland	x(2)	21.7	24.0	a	40.4	3.1	x(8)	10.9	100
Portugal	67.7	12.2	x(5)	x(5)	10.8	x(5)	2.7	6.5	100
Spain	44.5	22.2	0.4	4.1	9.0	n	5.8	14.0	100
Sweden	11.8	12.1	x(5)	x(5)	48.1	x(7)	15.4	12.6	100
Switzerland	x(2)	18.5	a	51.3	7.2	x(4,5)	9.0	14.0	100
Turkey	74.3	8.0	a	3.1	8.5	a	x(8)	6.1	100
United Kingdom	x(2)	19.2	27.7	16.5	13.1	x(9)	8.2	15.4	100
United States	5.0	8.6	x(5)	x(5)	51.6	x(5)	8.3	26.6	100
Country mean	**24.4**	**19.4**	**13.0**	**22.8**	**24.1**	**5.4**	**9.4**	**13.6**	**100**

Note Column of reference is given in brackets after "x". x(2) means that data are included in column 2

[1] Year of reference 1997

Source OECD Database. See Annex 3 for notes

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Table A2.1*b*. **Distribution of the labour force 25 to 64 years of age by level of educational attainment (1998)**

	Pre-primary and primary education	Lower secondary education	Upper secondary education			Post-secondary non-tertiary education	Tertiary-type B education	Tertiary-type A and advanced research programmes	All levels of education
	ISCED 0/1	ISCED 2	ISCED 3C Short	ISCED 3C Long / 3B	ISCED 3A	ISCED 4	ISCED 5B	ISCED 5A/6	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Australia	x(2)	38	a	11	22	x(5)	10	19	100
Austria[1]	x(2)	21	a	55	6	6	5	8	100
Belgium	11	21	a	7	28	x(4)	17	16	100
Canada	x(2)	16	x(5)	x(5)	28	14	22	21	100
Czech Republic	x(2)	11	a	45	33	x(5)	a	12	100
Denmark	n	17	a	49	5	x(5)	22	6	100
Finland[1]	x(2)	26	a	a	41	a	18	15	100
France	15	18	30	3	10	0.2	11	12	100
Germany	1	11	a	55	1	5	10	16	100
Greece[1]	39	9	2	2	23	5	5	15	100
Hungary	1	23	a	29	30	x(4)	x(9)	17	100
Iceland	2	35	7	a	22	12	5	17	100
Ireland	16	25	m	m	32	x(5,7)	13	13	100
Italy	15	32	3	6	27	6	x(8)	12	100
Japan	x(2)	18	a	x(5)	50	m	11	20	100
Korea	17	16	a	x(5)	42	a	5	19	100
Mexico[1]	55	21	a	8	x(2)	a	1	15	100
Netherlands	8	20	a	x(5)	43	x(8)	x(8)	28	100
New Zealand	x(2)	23	a	22	19	8	14	14	100
Norway[1]	0.1	14	a	39	18	1	2	26	100
Poland	x(2)	17	26	a	41	3	x(8)	13	100
Portugal	66	13	x(5)	x(5)	11	x(5)	3	8	100
Spain	34	24	0.4	5	10	n	7	18	100
Sweden	9	12	x(5)	x(5)	49	x(7)	16	14	100
Switzerland	x(2)	16	a	52	7	x(4,5)	10	15	100
Turkey	68	9	a	4	10	a	x(8)	9	100
United Kingdom	x(2)	14	28	17	14	x(9)	9	17	100
United States	4	7	x(5)	x(5)	51	x(5)	9	29	100
Country mean	**20**	**18**	**14**	**24**	**25**	**5**	**10**	**16**	**100**

Note: Column of reference is given in brackets after "x". x(2) means that data are included in column 2.

1. Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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Table A2.2a. Percentage of the population that has attained at least upper secondary education, by age group (1998)

	At least upper secondary education[1]				
	25-64	25-34	35-44	45-54	55-64
OECD countries					
Australia	56	64	58	52	44
Austria[2]	73	84	78	68	56
Belgium	57	73	61	51	34
Canada	80	87	83	77	65
Czech Republic	85	92	88	84	74
Denmark	78	85	80	78	67
Finland[2]	68	84	78	62	41
France[3]	61	75	63	56	41
Germany	84	88	87	84	76
Greece[2]	44	66	52	36	22
Hungary	63	77	73	65	31
Iceland	55	61	58	55	40
Ireland	51	67	56	41	31
Italy	41	55	50	35	19
Japan	80	93	91	77	57
Korea	65	92	70	45	27
Mexico	21	26	23	16	9
Netherlands	64	74	68	59	50
New Zealand	73	79	77	69	58
Norway[2]	83	93	88	78	65
Poland	54	62	59	53	37
Portugal	20	29	20	14	12
Spain	33	53	38	23	12
Sweden	76	87	80	73	60
Switzerland	81	88	83	80	71
Turkey	18	24	19	13	7
United Kingdom[3]	60	63	62	58	53
United States	86	88	88	87	80
Country mean	**61**	**72**	**65**	**57**	**44**
WEI participants[2]					
Argentina	m	36	29	21	15
Brazil	m	28	26	19	12
Chile	m	54	38	33	24
China	m	18	22	10	10
India	m	11	9	6	3
Indonesia	m	30	17	13	7
Jordan	m	48	41	28	15
Malaysia	m	50	34	19	9
Paraguay	m	27	19	13	12
Philippines	m	56	53	35	35
Uruguay	m	38	34	26	17
Zimbabwe	m	16	14	14	12

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[1] Excluding ISCED 3C Short programmes.

[2] Year of reference 1997.

[3] Not all ISCED 3 programmes meet minimum requirements for ISCED 3C Long programmes. For more information see Annex 3.

Source: OECD Database.

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Table A2.2b. Percentage of the population that has attained at least tertiary education, by age group (1998)

	At least tertiary-type B					At least tertiary-type A[1]				
	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64
OECD countries										
Australia	25	28	28	25	17	17	19	18	16	10
Austria[2]	11	12	13	10	6	6	7	8	5	4
Belgium	25	34	28	22	14	12	16	13	10	6
Canada	39	46	39	37	28	19	23	18	18	13
Czech Republic	10	10	12	10	8	10	10	12	10	8
Denmark	25	27	27	27	19	5	7	5	5	3
Finland[2]	29	36	33	27	18	13	14	15	13	8
France	21	30	20	18	11	11	15	10	10	6
Germany	23	22	26	25	19	14	14	16	15	10
Greece[2]	16	22	19	13	8	11	15	14	10	6
Hungary	13	14	14	14	10	13	14	14	14	10
Iceland	21	24	24	19	11	16	19	18	15	9
Ireland	21	29	22	16	11	11	16	11	7	5
Italy[3]	9	9	11	9	5	9	9	11	9	5
Japan	30	45	40	23	13	18	23	23	15	9
Korea	22	34	23	12	8	17	23	19	11	8
Mexico	13	17	15	10	5	12	15	14	10	5
Netherlands[3]	24	27	26	23	17	24	27	26	23	17
New Zealand	27	26	28	27	23	13	16	13	12	7
Norway[2]	26	30	28	24	18	24	27	25	22	17
Poland[3]	11	12	10	11	10	11	12	10	11	10
Portugal	9	11	9	8	7	7	8	7	5	4
Spain	20	32	21	14	8	14	21	16	11	6
Sweden	28	31	31	29	20	13	10	14	15	11
Switzerland	23	25	25	22	18	14	16	15	13	11
Turkey[3]	6	7	7	6	3	6	7	7	6	3
United Kingdom	24	26	25	23	17	15	17	17	15	11
United States	35	36	36	37	27	27	27	26	29	22
Country mean	**21**	**25**	**23**	**19**	**14**	**14**	**16**	**15**	**13**	**9**
WEI participants[2]										
Argentina	m	11	10	7	4	m	m	m	m	m
Brazil	m	7	9	8	5	m	m	m	m	m
Chile	m	9	9	8	5	m	m	m	m	m
China	m	5	3	3	3	m	m	m	m	m
India	m	8	7	5	3	m	m	m	m	m
Indonesia	m	3	2	1	1	m	m	m	m	m
Jordan	m	30	26	18	9	m	m	m	m	m
Malaysia	m	11	8	6	5	m	m	m	m	m
Paraguay	m	11	8	6	5	m	m	m	m	m
Philippines	m	26	26	18	18	m	m	m	m	m
Uruguay	m	8	10	8	5	m	m	m	m	m
Zimbabwe	m	2	2	2	2	m	m	m	m	m

[1] The category "at least tertiary-type A" includes tertiary-type A and advanced research programmes.

[2] Year of reference 1997.

[3] The level of educational attainment of tertiary-type A includes tertiary-type B.

Source: OECD Database. See Annex 3 for notes.

Table A2.2c. Percentage of the population that has attained a specific level of education, by age group and gender (1998)

		At least upper secondary education[1]					At least tertiary type A[2]				
		25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64
OECD countries											
Australia	Men	63	69	66	61	54	17	17	19	17	11
	Women	49	60	50	43	35	17	21	18	14	9
Austria[3]	Men	80	87	84	76	68	8	8	9	8	7
	Women	66	80	71	60	46	5	6	6	3	2
Belgium	Men	57	71	60	53	37	14	17	15	14	10
	Women	56	76	61	49	31	9	15	10	6	3
Canada	Men	78	86	81	77	62	20	22	19	21	16
	Women	79	88	84	77	59	17	23	17	16	8
Czech Republic	Men	91	93	92	90	86	12	11	15	12	11
	Women	80	91	84	78	63	8	10	10	8	6
Denmark	Men	81	85	80	83	73	6	8	6	7	5
	Women	76	86	79	72	60	4	6	5	4	2
France[4]	Men	64	75	66	61	47	12	14	11	12	9
	Women	58	76	61	51	35	9	15	9	8	4
Finland[3]	Men	67	82	76	61	43	14	15	16	14	10
	Women	69	86	80	63	40	12	14	14	11	7
Germany	Men	89	89	90	89	86	17	15	19	20	15
	Women	79	86	84	78	66	11	13	14	11	5
Greece[3]	Men	45	63	51	39	27	13	14	16	13	9
	Women	43	68	52	33	17	10	16	12	8	3
Hungary	Men	68	79	77	72	34	13	12	12	15	13
	Women	58	76	68	57	28	13	16	16	13	8
Iceland	Men	63	61	65	65	55	17	19	20	17	13
	Women	48	60	50	42	27	15	22	18	13	m
Ireland	Men	48	63	52	39	30	12	17	13	9	6
	Women	54	71	60	42	32	9	15	9	6	4
Italy	Men	43	52	50	40	23	9	8	12	10	7
	Women	40	57	49	30	16	8	10	11	8	3
Japan	Men	80	92	90	77	60	27	33	34	24	16
	Women	80	95	93	78	54	8	14	11	6	3
Korea	Men	74	93	79	59	42	23	27	26	17	14
	Women	57	91	61	30	13	11	20	11	5	2
Mexico	Men	21	24	24	18	10	16	17	19	14	7
	Women	21	28	23	14	7	9	12	10	5	2
Netherlands	Men	69	73	70	68	61	27	28	29	29	22
	Women	60	75	65	51	39	21	27	23	18	12
New Zealand	Men	75	79	78	74	64	14	16	14	14	9
	Women	70	79	76	64	53	11	16	12	9	5
Norway[3]	Men	84	92	88	79	69	24	24	23	24	21
	Women	82	93	88	78	61	24	31	26	20	13
Poland	Men	57	63	61	56	43	10	10	9	11	11
	Women	51	61	56	50	32	11	14	11	11	9
Portugal	Men	18	25	18	14	10	6	7	6	6	5
	Women	22	32	21	15	13	7	10	7	5	4
Spain	Men	35	50	39	27	17	14	18	15	13	9
	Women	31	56	36	18	8	14	24	16	9	4
Sweden	Men	74	87	77	70	59	13	9	14	15	12
	Women	78	88	83	76	61	13	11	13	15	11
Switzerland	Men	87	92	86	87	83	19	20	19	20	18
	Women	76	85	79	72	60	9	11	11	7	4
Turkey	Men	23	30	26	18	10	8	9	9	9	5
	Women	12	19	13	8	3	4	6	4	3	1
United Kingdom[4]	Men	70	68	72	72	64	17	18	18	17	12
	Women	50	55	51	47	39	14	16	15	13	9
United States	Men	86	87	87	87	80	28	26	27	32	26
	Women	87	89	89	88	79	25	29	26	26	18
Country mean	**Men**	**64**	**72**	**67**	**61**	**50**	**15**	**16**	**17**	**16**	**12**
	Women	**58**	**72**	**63**	**52**	**38**	**12**	**16**	**13**	**10**	**6**

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Table A2.2c. **Percentage of the population that has attained a specific level of education, by age group and gender (1998)** *(cont.)*

		At least upper secondary education[1]					At least tertiary type A[2]				
		25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64
WEI participants[3]											
Argentina	Men	m	33	27	21	16	m	8	9	7	5
	Women	m	39	30	22	14	m	14	11	7	4
Brazil	Men	m	25[4]	26	19	13	m	6	8	8	6
	Women	m	30	27	19	11	m	8	9	7	4
Chile	Men	m	53	39	35	26	m	10	11	9	6
	Women	m	56	37	31	22	m	9	8	6	3
China	Men	m	21	26	11	13	m	5	4	4	5
	Women	m	16	17	7	6	m	4	2	2	2
India	Men	m	19	16	11	7	m	12	11	8	5
	Women	m	7	4	2	1	m	5	3	2	1
Indonesia	Men	m	37	22	18	11	m	4	3	2	1
	Women	m	25	12	8	4	m	3	1	1	0
Jordan	Men	m	48	49	39	23	m	29	33	25	15
	Women	m	48	32	17	6	m	30	18	10	2
Malaysia	Men	m	51	39	24	14	m	11	10	7	4
	Women	m	49	29	13	5	m	10	6	3	1
Paraguay	Men	m	27	20	14	14	m	11	9	7	7
	Women	m	26	19	13	10	m	11	7	6	3
Philippines	Men	m	54	52	37	37	m	23	24	18	18
	Women	m	58	55	33	33	m	28	28	17	17
Zimbabwe	Men	m	21	19	17	17	m	2	3	3	3
	Women	m	11	9	10	8	m	1	2	1	1

1. Excluding ISCED 3C Short programmes.
2. The category "at least tertiary-type A" includes tertiary-type A and advanced research programmes.
3. Year of reference 1997.
4. Not all ISCED 3 programmes meet minimum requirements for ISCED 3C Long programmes. For more information see Annex 3.

Source: OECD Database.

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Table A2.3*a*. **Percentage of the population 16 to 65 years of age at each document literacy level (1994-1995)**

	IALS level 1	IALS level 2	IALS level 3	IALS level 4/5
Australia	17 (0.5)	28 (0.7)	38 (0.7)	17 (0.6)
Belgium (Flanders)	15 (1.7)	24 (2.8)	43 (4.1)	17 (0.9)
Canada	18 (1.9)	25 (1.5)	32 (1.8)	25 (1.3)
Germany	9 (0.7)	33 (1.2)	40 (1.0)	19 (1.0)
Ireland	25 (1.7)	32 (1.2)	32 (1.3)	12 (1.2)
Netherlands	10 (0.7)	26 (0.8)	44 (0.9)	20 (0.8)
New Zealand	21 (0.9)	29 (1.1)	32 (0.8)	18 (0.7)
Poland	45 (1.3)	31 (1.0)	18 (0.7)	6 (0.3)
Sweden	6 (0.4)	19 (0.7)	39 (0.8)	36 (0.6)
Switzerland	18 (0.8)	29 (1.1)	37 (0.6)	16 (0.7)
United Kingdom	23 (1.0)	27 (1.0)	31 (1.0)	19 (1.0)
United States	24 (0.8)	26 (1.1)	31 (0.9)	19 (1.0)

( ) Standard errors appear in parentheses.
Source: OECD and Statistics Canada/International Adult Literacy Survey (IALS).

Table A2.3*b*. **Mean scores and scores at the 10th, 25th, 75th and 90th percentiles on the document literacy scale (1994-1995)**

	10th percentile	25th percentile	Mean	75th percentile	90th percentile
Australia	187	237	269	312	340
Belgium (Flanders)	225	263	278	321	345
Canada	154	213	270	309	343
Germany	226	255	285	316	342
Ireland	179	223	259	299	327
Netherlands	222	257	282	318	341
New Zealand	199	240	269	316	346
Poland	112	180	224	274	310
Sweden	229	268	295	337	365
Switzerland	182	246	271	315	341
United Kingdom	180	228	268	311	343
United States	137	210	268	309	343

Source: OECD and Statistics Canada/International Adult Literacy Survey (IALS).

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Table A2.3c. **Mean scores and scores at the 10th, 25th, 75th and 90th percentiles on the document literacy scale by level of education (1994-1995)**

	Level of education[1]	10th percentile	25th percentile	Mean	75th percentile	90th percentile
Australia	Below upper secondary education	149	212	244	289	316
	Upper secondary and non-university	217	254	281	316	341
	University-level education	267	295	320	348	372
Belgium (Flanders)	Below upper secondary education	192	238	251	303	326
	Upper secondary and non-university	245	274	294	326	347
	University-level education	278	296	319	343	362
Canada	Below upper secondary education	116	167	216	263	298
	Upper secondary and non-university	221	257	291	323	351
	University-level education	260	289	326	350	378
Germany	Below upper secondary education	218	249	276	305	331
	Upper secondary and non-university	242	268	297	327	349
	University-level education	252	282	318	345	370
Ireland	Below upper secondary education	150	196	232	272	301
	Upper secondary and non-university	226	253	283	311	335
	University-level education	252	282	313	342	370
Netherlands	Below upper secondary education	198	232	257	294	318
	Upper secondary and non-university	252	277	301	325	346
	University-level education	263	288	309	336	355
New Zealand	Below upper secondary education	175	217	245	286	315
	Upper secondary and non-university	228	263	289	325	351
	University-level education	258	292	313	351	375
Poland	Below upper secondary education	93	152	202	255	288
	Upper secondary and non-university	185	222	257	292	322
	University-level education	209	244	280	319	347
Sweden	Below upper secondary education	189	234	263	312	343
	Upper secondary and non-university	252	281	309	341	368
	University-level education	274	304	331	362	391
Switzerland	Below upper secondary education	138	202	231	278	309
	Upper secondary and non-university	230	259	286	315	339
	University-level education	258	290	312	345	371
United Kingdom	Below upper secondary education	154	207	248	289	320
	Upper secondary and non-university	219	256	289	323	351
	University-level education	259	290	320	347	373
United States	Below upper secondary education	94	138	199	256	293
	Upper secondary and non-university	176	230	273	305	335
	University-level education	235	279	312	344	373

[1] Based on the old ISCED classification (ISCED-76).

Source: OECD and Statistics Canada/International Adult Literacy Survey (IALS).

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B

FINANCIAL AND HUMAN RESOURCES INVESTED IN EDUCATION

Education is an investment in human skills. It can thus help to foster economic growth and enhance productivity, contribute to personal and social development, and reduce social inequality. Like any investment, it has both costs and returns. This chapter provides a comparative examination of cost patterns in OECD countries, focusing on three aspects of educational spending:

- the resources that each country invest in education, relative to national wealth, the number of students, and the size of the public purse;
- the ways in which education systems are funded, and the sources from which the funds originate; and
- the apportionment of resources between different resource categories.

How much is spent on education?

Indicator B1 examines the proportion of national resources devoted to educational institutions, the sources of these funds, and the levels of education to which they are directed. This indicator provides a broad picture of the resources devoted to education, although it has to be interpreted in the light of a number of inter-related supply and demand factors, including the demographic structure of the population (Indicator A2), enrolment rates at the different levels of education (Indicator C1), income per capita, and national price levels for educational resources. The relative size of the youth population, for example, shapes the potential demand for initial education and training in a country. The bigger the proportion of young people (other things being equal), the more resources have to be devoted to education. Similarly, participation rates affect educational expenditure: the higher the enrolment rates (again, other things being equal), the more financial resources will be required.

While Indicator B1 shows the proportion of national wealth that is invested in education, **Indicator B4** shows how these funds translate into the amount ultimately spent per student. Policy-makers must balance the pressure to improve the quality of educational services against the desirability of expanding access to educational opportunities. They must also decide how to apportion expenditure per student between different levels of education – including continuing education and training – and between different types of educational programme. For example, some countries emphasise broad access to higher education while others invest in near-universal education for children as young as two or three years of age. As there are no absolute standards for the resources per student necessary to ensure optimal returns for either the participant or society as a whole, international comparisons of national investment in education provide an important insight into how countries vary in the extent of their investment.

Who pays for education?

Cost-sharing, between the participants in education and society as a whole, is an issue that is under discussion in many countries. This question is especially relevant at the beginning and ending stages of education – early childhood and tertiary education – where full or nearly full public funding is less common in some countries.

With increased participation drawing from new client groups and a wider range of educational opportunities, programmes, and providers, governments are forging new partnerships to mobilise the necessary resources to pay for education. New policies are designed to allow the different actors and stakeholders to participate more fully and to share the costs and benefits more equitably. New funding strategies aim also at influencing student behaviour in ways that make education more cost-effective. As a result, public funding is now increasingly seen as providing only a part, although a very substantial part, of the investment in education. Private sources of funds are playing an increasingly important role. To shed light on these issues, **Indicator B2** examines the relative proportions of funds for educational institutions that come from public and private sources, as well as trends in how these proportions have evolved since 1990.

Through subsidies to students and their families, governments can help to cover the costs of education and related expenditure, with the aim of increasing access to education and reducing social inequalities. Furthermore, public subsidies play an important role in indirectly funding educational institutions. Channelling funding for institutions through students may help to increase competition among institutions and result in greater efficiency in the funding of education. Since aid for student living costs can also serve as a substitute for work as a financial resource, public subsidies may enhance educational attainment by enabling students to study full-time and to work fewer hours or not at all. The new **Indicator B3** examines public subsidies to households for student living costs and for educational expenses.

Decisions on how educational funds are spent are also likely to be influenced by the question of which level of government has responsibility for, and control over, the funding of education. An important factor in educational policy is thus the division of responsibility for educational funding between national, regional and local authorities. Important decisions on educational funding are made both at the initial level of government where the funds originate and at the final level of government where they are finally spent or distributed. At the initial level, decisions are made concerning the volume of resources allocated, and any restrictions on how that money can be spent. At the final level, additional restrictions may be attached to the funds, or this level of government may even pay directly for educational resources (for example, by paying teachers' salaries). **Indicator B6** shows both the initial and final sources of public funding.

How are funds allocated?

How funds are apportioned between functional categories can influence the quality of instruction (through the relative expenditure on teachers' salaries, for example), the condition of educational facilities (through expenditure on school maintenance) and the ability of the education system to adjust to changing demographic and enrolment trends. Comparisons of how countries apportion educational expenditure between the various resource categories can provide some insight into the degree of variation in the organisational structure and the operation of educational institutions. Decisions on the allocation of resources made at the system level, both budgetary and structural, eventually feed through to the classroom and affect the nature of instruction and the conditions under which it is provided. The nature of expenditure, in particular the proportion of current expenditure devoted to the compensation of staff (including both salary and non-salary compensation), is examined in **Indicator B5**.

Finally, **Indicator B7** compares student/teaching staff ratios across countries – another important indicator of the resources countries devote to education.

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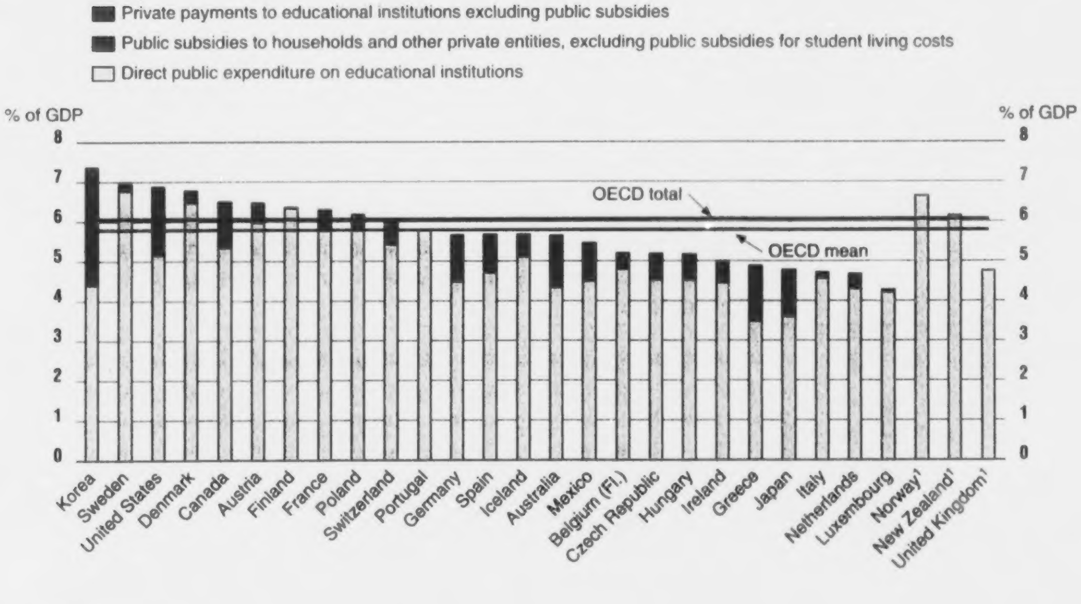
EDUCATIONAL EXPENDITURE RELATIVE TO GROSS DOMESTIC PRODUCT

- OECD countries as a whole spend 6.1 per cent of their collective GDP in support of their educational institutions.
- In the majority of OECD countries, public and private investments in education increased between 1990 and 1996.
- In almost all OECD countries, expenditure on education grew faster than national wealth.
- On average, OECD countries devote 14.0 per cent of total government spending to support for education.

Chart B1.1. **Expenditure on educational institutions at all levels of education combined as a percentage of GDP, by source of funds (1997)**



1. Public expenditure only.

Countries are ranked in descending order of total expenditure from both public and private sources on educational institutions.

Source: OECD.

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POLICY CONTEXT

This indicator provides a measure of the relative proportion of a nation's wealth that is invested in educational institutions, its origin and its destination.

Expenditure on education is an investment that can help to foster economic growth, enhance productivity, contribute to personal and social development, and reduce social inequality. The proportion of total financial resources devoted to education is one of the key choices made in each country, an aggregate choice made by governments, heads of enterprises, and individual students and their families. So long as the social and private returns on that investment are sufficiently large, there is an incentive for enrolment to expand and total investment to increase.

It also includes a comparative review of changes in educational investment over time.

In appraising how much they spend on education, governments have to interpret demands for increased spending in areas such as teachers' salaries and educational facilities and to assess how effectively existing resources are being utilised. Although this indicator cannot answer these questions directly, it provides a point of reference as to how the volume of educational spending, relative to the size of national wealth, has evolved over time in various countries.

EVIDENCE AND EXPLANATIONS

Overall investment relative to GDP

As a whole, OECD *countries spend* 6.1 *per cent of their combined* GDP *in support of their educational institutions.*

All OECD countries invest a substantial proportion of national resources in education. Taking into account both public and private sources of funds, OECD countries as a whole spend 6.1 per cent of their collective GDP in support of their educational institutions. Under current conditions of tight constraints on public budgets, such a large spending item is subject to close scrutiny by governments looking for ways to reduce or limit the growth of expenditure. In only four out of 23 reporting OECD countries (Greece, Italy, Japan, and the Netherlands) is less than 5 per cent of GDP spent on educational institutions (Chart B1.1).

If direct public expenditure, funds from international sources and all public subsidies to students and households are taken into account, then the proportion of GDP spent on education in OECD countries rises to above 8 per cent of GDP in Denmark and Sweden, and to between 6.5 and 8 per cent in Austria, Canada, Finland, and the United States; it remains below 5 per cent in Greece and Italy.

Many factors influence the relative position of countries on this measure. For example, high-expenditure countries may be enrolling larger numbers of students while low-expenditure countries may either be very efficient in delivering education or be limiting access to higher levels of education; the distribution of enrolments between sectors and fields of study may differ, as may the duration of studies; and the scale and organisation of linked research activities may vary.

Changes in overall educational spending between 1990 *and* 1996

In seven out of nine OECD *countries, public and private investment in education increased between* 1990 *and* 1996...

In seven out of the nine countries for which comparable trend data are available, public and private investment in education has increased between 1990 and 1996 in real terms (Table B1.2). The increase in Australia, Denmark and Spain amounted to over 20 per cent, and in Ireland to over 40 per cent. On the other hand, spending in Finland and Hungary was lower in 1996 than in 1990. The trend is similar if only public investment is considered: direct

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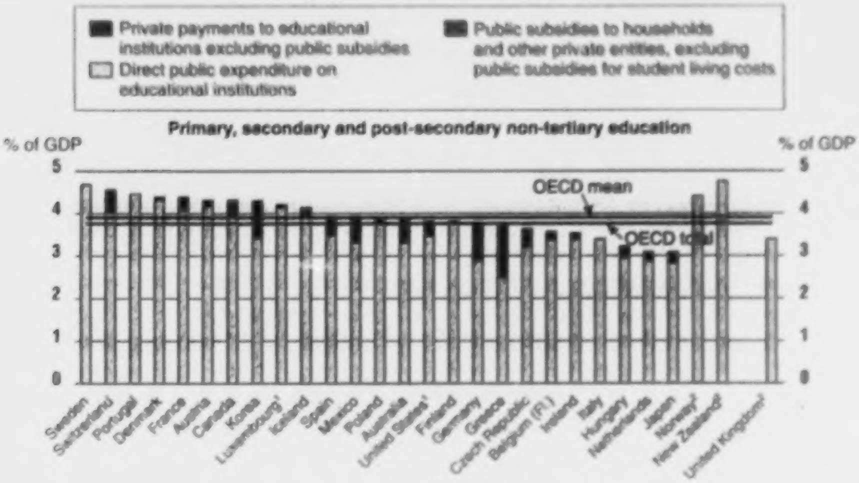
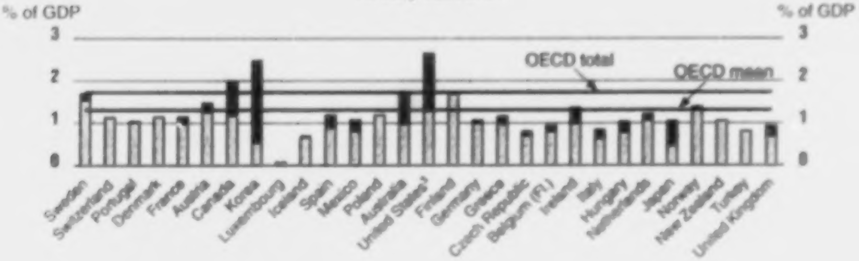
Chart B1.2. **Expenditure on educational institutions as a percentage of GDP, by source of funds and level of education (1997)**



Primary, secondary and post-secondary non-tertiary education

Tertiary education



1. Excludes post-secondary non-tertiary education.
2. Public expenditure only.
3. Includes post-secondary non-tertiary education.

Countries are ranked in descending order of total expenditure from both public and private sources on educational institutions for primary, secondary and post-secondary non-tertiary institutions.

Source: OECD.

Direct public expenditure on educational institutions is by far the largest source of education funds in both primary, secondary and post-secondary non-tertiary education, and in tertiary education.

public expenditure on institutions and public subsidies to households increased in 15 out of 17 countries between 1990 and 1996. Substantial decreases in public expenditure on education over the period 1990 to 1996 can be observed only in Hungary and Italy (38 and 18 per cent respectively).

... and in almost all countries, expenditure on education increased faster than national wealth.

In almost all OECD countries for which comparable trend data are available, expenditure on education grew faster than or kept pace with national wealth (Table B1.1*a*). In Mexico and Portugal, public expenditure on educational institutions as a percentage of GDP increased by over one percentage point over the period 1990 to 1997. By contrast, public expenditure as a percentage of GDP declined in Hungary, Ireland and Italy.

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Countries vary in the levels of education that show the largest growth in expenditure.

Countries vary in the levels of education that show the largest growth in expenditure. Australia, France, Norway and Spain substantially increased the proportion of their GDP spent on public funding of tertiary education between 1990 and 1997, relative to other educational levels; increases in Mexico, by contrast, were primarily driven by rising public expenditure on primary and secondary education. Hungary and Italy showed sizeable decreases in the proportion of GDP that the government spent on education at all levels.

Part, but not all, of the changes in expenditure can be explained by changes in student demography and enrolment patterns (Indicators A2 and C1).

Expenditure on education by source of funds

Most expenditure is accounted for by public spending on educational institutions.

Although the relative proportions of public and private investments in education are discussed in Indicator B2, government spending continues to be the main source of educational funding in OECD countries. In fact, 4.8 per cent of collective GDP is accounted for by direct public expenditure on educational institutions. This percentage varies greatly between OECD countries, ranging from 3.6 per cent or less in Greece and Japan to 6.5 per cent or more in Denmark, Norway and Sweden (Table B1.1*a*).

Public subsidies to households (scholarships and loans to students for tuition fees and other costs, for example) and subsidies to other private entities for education (through, say, subsidies to companies or labour organisations that operate apprenticeship programmes) comprise another 0.1 per cent of the collective GDP of OECD countries. Public subsidies account for more than 0.2 per cent of GDP in Australia, Canada, the Netherlands and Poland.

Some countries invest considerable resources in subsidies for student living expenses.

Government subsidies for students' living expenses lower the opportunity costs of education. In addition to the direct impact that these subsidies have on educational expenditure, they can also have an indirect impact by stimulating additional enrolment. Government financial aid to students for living expenses is substantial in many countries, ranging from below 0.1 per cent of GDP in Hungary, Italy, Korea and Poland to over 1 per cent of GDP in Denmark and New Zealand (Table B1.1*a*).

Although government spending is the main source of educational funding, contributions by households and enterprises are substantial.

Although the primary concern of governments generally relates to expenditure originating in the public sector, a broader understanding of how the private sector can be mobilised to fund educational activities is also important for policy-makers. Increasingly, public funding is seen as providing only a part, albeit an important part, of total educational investment. Particularly in tertiary education, financial mechanisms are being used to encourage learners and third parties to contribute to the costs of tertiary education.

Funds generated by the private sector amount, in OECD countries as a whole, to 1.2 per cent of GDP.

If the 22 OECD countries providing data on private expenditure are taken as a whole, the private sector is the source of 20 per cent of aggregate expenditure on educational institutions, amounting to 1.2 per cent of aggregate GDP. Countries nonetheless differ considerably in the degree to which expenditure on educational institutions is shared by the direct beneficiaries of education and society as a whole. For example, private payments to educational institutions (net of public subsidies) exceed 1 per cent of GDP in Australia, Germany, Greece, Japan, Korea and the United States.

In Korea and the US private spending largely originates in households, whereas in Germany business enterprises provide the major share.

Whereas in Korea and the United States most private expenditure comes from households, most private spending is accounted for in Germany by the support provided by business enterprises for the work-based component of the dual apprenticeship system. In Canada, the Czech Republic, Hungary, Iceland, Mexico and Spain, private expenditure is between 0.5 and 1 per cent of GDP, but it is less than 0.2 per cent of GDP in Italy, the Netherlands, Portugal and Sweden.

In some countries, private payments other than to educational institutions (such as expenditure by households on student living expenses, books and other supplies) are substantial, equalling or exceeding 0.5 per cent of GDP in Australia, Denmark, the Netherlands and Spain. But coverage of these forms of private expenditure is not uniform across countries, and often reflects the degree to which public subsidies are given to support students' living costs.

"Visible" private costs account for only part of the full costs incurred by students and their families.

Although the relative proportion of private expenditure on educational institutions may appear comparatively low in many countries, it must be taken into account that the total costs which families incur for the education of their children often far exceed the private payments to educational institutions captured in this indicator. Moreover, the coverage of private sources of funds in this indicator, especially expenditure on private institutions and student living costs, is not complete in many countries.

Important factors influencing national expenditure on education

The national resources devoted to education depend on a number of inter-related factors of supply and demand.

The national resources devoted to education depend on a number of inter-related factors of supply and demand, such as the demographic structure of the population, enrolment rates, income per capita, national price levels for educational resources and the organisation and delivery of instruction.

The larger the amount of young people, the greater the potential demand for educational services.

The size of the population of school age in a particular country (Indicator A1) shapes the potential demand for initial education and training. The larger the number of young people, the greater the potential demand for educational services. Among countries of comparable wealth, a country with a relatively large youth population will have to spend a higher percentage of its GDP on education so that each young person in that country has the opportunity to receive the same quantity of education as young people in other countries. Conversely, if the relative size of the youth population is smaller, the same country will be required to spend less of its wealth on education in order to achieve similar results.

In some countries, expenditure on education appears relatively low in proportion to the size of the youth population.

In Denmark, Germany, Italy and Spain, educational expenditure as a percentage of GDP would be expected to rise by 0.7 percentage points or more if the relative size of the youth population in these countries were at the OECD average (Chart B1.3A). By contrast, in Iceland, Ireland, Mexico and Poland expenditure on education would be expected to fall by at least 0.6 percentage points if the youth population in these countries were at the OECD average.

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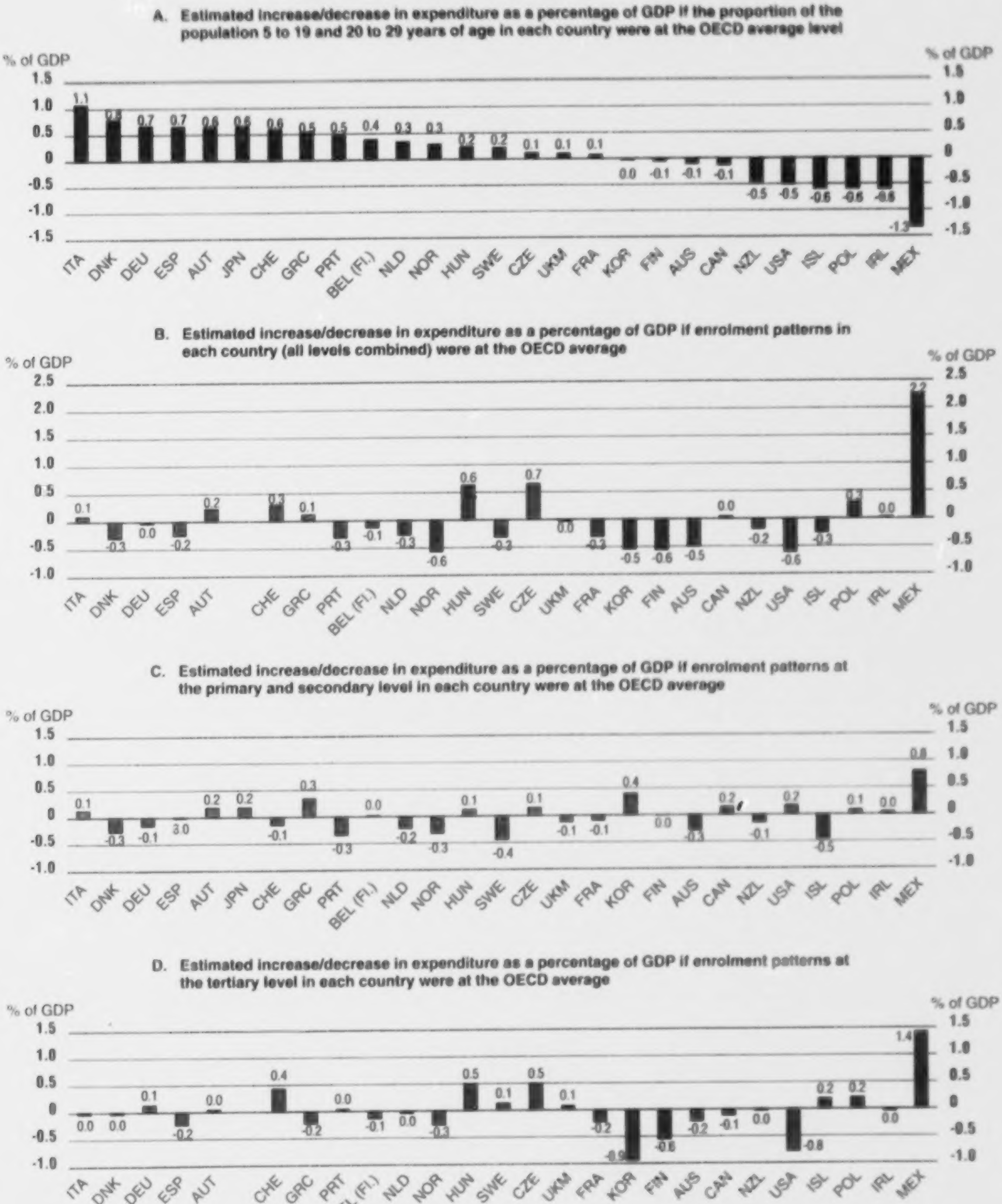
Chart B1.3. Impact of demography and enrolment on expenditure on educational institutions as a percentage of GDP (1997)


A. Estimated increase/decrease in expenditure as a percentage of GDP if the proportion of the population 5 to 19 and 20 to 29 years of age in each country were at the OECD average level

B. Estimated increase/decrease in expenditure as a percentage of GDP if enrolment patterns in each country (all levels combined) were at the OECD average

C. Estimated increase/decrease in expenditure as a percentage of GDP if enrolment patterns at the primary and secondary level in each country were at the OECD average

% of GDP
1.5
1.0
0.5
0
-0.5
-1.0
ITA 0.1
DNK -0.3
DEU -0.1
ESP 0.0
AUT 0.2
JPN 0.2
CHE -0.1
GRC 0.3
PRT -0.3
BEL (Fl.) 0.0
NLD -0.2
NOR -0.3
HUN 0.1
SWE -0.4
CZE 0.1
UKM -0.1
FRA -0.1
KOR 0.4
FIN 0.0
AUS -0.3
CAN 0.2
NZL -0.1
USA 0.2
ISL -0.5
POL 0.1
IRL 0.0
MEX 0.8

D. Estimated increase/decrease in expenditure as a percentage of GDP if enrolment patterns at the tertiary level in each country were at the OECD average

% of GDP
1.5
1.0
0.5
0
-0.5
-1.0
ITA 0.0
DNK 0.0
DEU 0.1
ESP -0.2
AUT 0.0
CHE 0.4
GRC -0.2
PRT 0.0
BEL (Fl.) -0.1
NLD 0.0
NOR -0.3
HUN 0.5
SWE 0.1
CZE 0.5
UKM 0.1
FRA -0.2
KOR -0.9
FIN -0.6
AUS -0.2
CAN -0.1
NZL 0.0
USA -0.8
ISL 0.2
POL 0.2
IRL 0.0
MEX 1.4

Countries are ranked in descending order of the values in Chart A.

Source: OECD.

The higher the enrolment rate, the more financial resources will be required.

Although countries generally have little control over the size of their youth populations, the proportion participating at various levels of education is indeed a central policy issue. Variations in enrolment rates between countries reflect differences in the demand for education, from pre-primary to tertiary education, as well as the supply of programmes at all levels. Indicator C1 shows that the years in education that a 5-year-old child can expect ranges among OECD countries from ten to 20 years. The variation in expected years in tertiary education is even wider, from less than one year in Mexico to 3.8 years in Finland.

Differences in the length of schooling also influence educational spending.

Differences in the length of schooling are reflected in differences in enrolment rates, which, in turn, influence educational expenditure. Chart B1.3B shows the change in expenditure on educational institutions as a percentage of GDP that would be expected if enrolment profiles were equal in all OECD countries, other factors remaining the same. Generally, countries that have higher than average enrolment rates, such as Denmark, Norway, Sweden and the United States, also spend more of their GDP on education whereas low-expenditure countries, such as Greece, have below-average enrolment rates. Exceptions to this pattern are the Czech Republic, Hungary, and Mexico, which have average spending and below-average enrolment rates.

If enrolment patterns were equal in all OECD countries, expenditure as a percentage of GDP would be expected to rise by 2.2 per cent of GDP in Mexico, and to fall by 0.5 per cent or more in Australia, Finland, Korea, Norway and the United States, assuming constant expenditure per student in each of these countries.

In some countries, demographic effects on educational spending are outweighed by the effects of enrolment patterns.

The various factors that affect spending on education should not be examined in isolation. In several instances where demographic change has the biggest potential impact on educational costs, its impact is moderated by opposite trends in participation patterns. In France, the Netherlands and Norway, for example, the potential savings from a relatively small youth population are partly counterbalanced by comparatively high participation rates. Similarly, in Mexico the potential cost of educating a relatively large youth population is counterbalanced by a below-average enrolment rate.

Such effects are most clearly visible in tertiary education, where both enrolment rates (Indicator C1) and costs per student (Indicator B4) differ widely between countries. If tertiary enrolment patterns in the United States were at the level of the OECD average, expenditure on tertiary education as a percentage of GDP would be expected to fall by 0.8 percentage points (Chart B1.3D). At the other end of the scale is Mexico, whose expenditure on tertiary education as a percentage of GDP would be expected to increase by 1.4 percentage points if enrolment patterns were at the OECD average.

Public expenditure on education as a percentage of total public expenditure

The proportion of a government's budget that is devoted to education is a function of the perceived value of education relative to that of other public investments.

Public expenditure on education as a percentage of total public expenditure indicates the value of education relative to that of other public investments such as health care, social security, defence, security, and other programmes. On average, OECD countries devote 14.4 per cent of total government expenditure to support for education, with the values for individual countries ranging between 10 per cent in Germany and 22 per cent in Poland (Chart B1.4). This expenditure includes direct expenditure on educational institutions and public subsidies to households (for example, scholarships and

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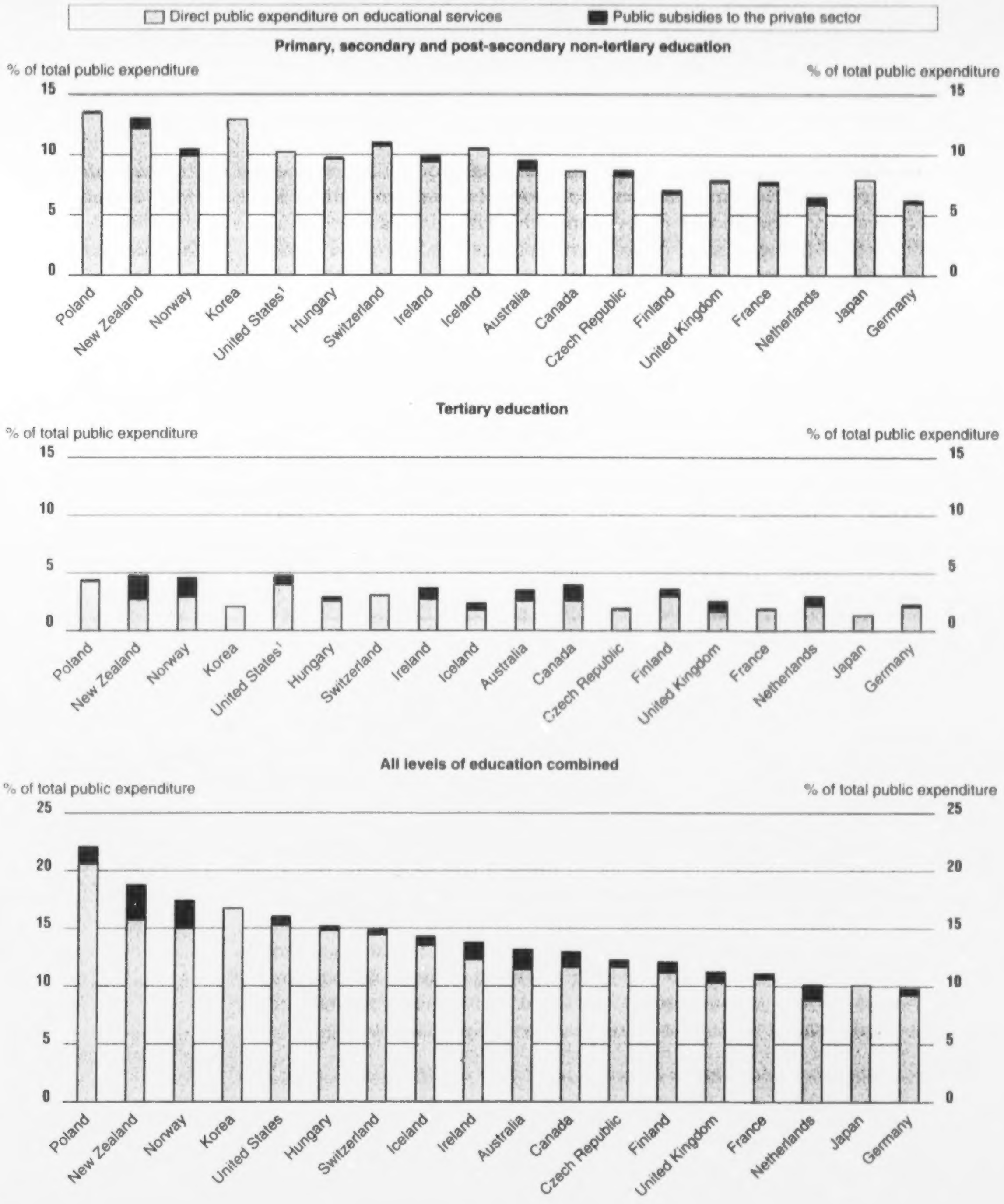
Chart B1.4. **Public expenditure on education as a percentage of total public expenditure (1997)**



1. Post-secondary non-tertiary data are included in tertiary education and not in primary, secondary and post-secondary non-tertiary education.

Countries are ranked in descending order of the proportion of public expenditure on education for all levels of education combined.

Source: OECD.

loans to students for tuition fees and student living costs) as well as to other private entities for education (for instance, subsidies to companies or labour organisations that operate apprenticeship programmes).

Education that is funded from public sources is organised and delivered primarily by public institutions.

In the majority of OECD countries, education that is funded from public sources is also organised and delivered by public institutions, although, in some countries the funding is finally transferred to government-dependent private institutions (Indicator B6) or given directly to households to spend in the institution of their choice. In the former case, the final spending and delivery of education could be regarded as subcontracted by governments to non-governmental institutions, whereas, in the latter instance, students and their families are left to decide which type of institution best meets their requirements.

The proportion of public expenditure devoted to education has increased between 1990 and 1997.

In six out of the seven OECD countries with comparable trend data, the proportion of public expenditure devoted to education increased between 1990 and 1997, by between 0.3 percentage points in Australia and 2.9 percentage points in Norway. Only in Finland did the share of total public expenditure devoted to education decline, by 2 percentage points.

Between 6.2 and 13.5 per cent of total public expenditure in OECD countries is allocated to primary, secondary, and post-secondary non-tertiary education, and between 1.3 and 4.8 per cent to tertiary education.

The involvement of the public sector in the funding of the different levels of education varies widely between OECD countries. In 1997, they spent between 6.2 and 13.5 per cent of total public expenditure on primary and secondary education and between 1.3 and 4.8 per cent on tertiary education. Korea, New Zealand, Norway, Poland, Switzerland and the United States all spend about 10 per cent or more of total government expenditure on primary, secondary, and post-secondary non-tertiary education. By contrast, the primary, secondary, and post-secondary non-tertiary proportion in Finland and Germany is 7 per cent or less. Canada, New Zealand, Norway, Poland and the United States devote the largest proportion of public spending to tertiary education (more than 4 per cent).

DEFINITIONS

Data refer to the financial year 1997 and are based on the UOE data collection on education statistics administered in 1999 (for details see Annex 3).

In this indicator, expenditure on education is expressed as a percentage of GDP and is presented by source of funds and by level of education. The distinction by source of funds is based on the initial source of funds and does not reflect subsequent public-to-private or private-to-public transfers.

Ideally, this indicator would cover both direct private costs (such as tuition and other educational fees and the costs of textbooks, uniforms and transport) as well as indirect private costs (lost output when employees participate in on-the-job training). But many of these private costs are difficult to measure and to compare internationally. The main focus of this indicator is therefore on public and private expenditure on educational institutions.

Direct public expenditure on educational institutions (column 1 of Tables B1.1*a*, *b* and *c*) can take the form either of purchases by a government agency itself of educational resources to be used by educational institutions or of payments by the government agency to educational institutions that have responsibility for purchasing educational resources.

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Public subsidies to households and other private entities for educational institutions (column 2 of Tables B1.1a, b and c) are composed of government transfers and certain other payments to students or households, insofar as these translate into payments to educational institutions for educational services (for example, fellowships, financial aid and student loans for tuition). They also include government transfers and some other payments (mainly subsidies) to other private entities, including, for example, subsidies to companies or labour organisations that operate apprenticeship programmes and interest subsidies to private financial institutions that provide student loans, etc.

Payments from households and other private entities to educational institutions (column 3 of Tables B1.1*a*, *b* and *c*) include tuition fees and other fees, net of offsetting public subsidies.

Public subsidies to households that are not attributable to payments to educational institutions (column 7 of Tables B1.1*a*, *b* and *c*) include subsidies for student living costs and the value of special subsidies provided to students, either in cash or in kind, such as free or reduced-price travel on public transport or family allowances that are contingent on student status. (These subsidies are also included in column 5 of Tables B1.1*a*, *b* and *c*.)

Private payments other than to educational institutions (column 6 of Tables B1.1*a*, *b* and *c*) include direct purchases of personal items used in education and subsidised expenditure on student living expenses.

The data do not include benefits provided to students or households in the form of tax reductions, tax subsidies or other special tax provisions. It should be noted also that the coverage of expenditure from private sources is still uneven across countries.

In Table B1.2 each of the following three expenditure variables are expressed as a percentage of a country's total public-sector expenditure: *i)* direct public expenditure on educational services; *ii)* public subsidies to the private sector; and *iii)* total expenditure on education from public sources.

Direct public expenditure on educational services includes both amounts spent directly by governments to hire educational personnel and to procure other resources, and amounts provided by governments to public or private institutions for use by the institutions themselves to acquire educational resources.

Public subsidies include scholarships and other financial aid to students plus certain subsidies to other private entities. The data on total public expenditure for all purposes (the denominator in all percentage calculations) have been taken from the OECD National Accounts Database (see Annex 2).

Data for 1989/90 are based on a special survey carried out among OECD countries in 1997.

Tables B1.1 and B1.2 show expenditure on educational services in the financial year 1990. The data on expenditure for 1990 were obtained by a special survey in 1997. Countries were asked to collect the 1990 data according to the definitions and the coverage of the UOE data collection on education statistics administered in 1997.

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All expenditure, as well as the GDP for 1990, is adjusted to 1996 prices using the private consumer price index.

Data for 1990 are expressed in 1996 price levels.

The methodology that was used for the calculation of the impact of student demography and enrolment patterns on this indicator is described in Annex 3.

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (the Reader's Guide gives details).

Because of the implementation of the new ISCED-97 classification, post-1996 data on educational funding are not comparable with earlier data when reported by level of education. The data used for computing the index of change have therefore been restricted to the years 1990-96 for comparability purposes, and are based on the ISCED-76 classification. There is no reason to expect that the change in ISCED classification would affect the magnitude of the trends observed in the various countries, since both starting and ending points would be adjusted similarly.

The data used for computing the index of change have been restricted to the years 1990-96 and are based on the ISCED-76 classification.

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Table B1.1a. **Educational expenditure as a percentage of GDP for all levels of education combined, by source of funds**

	1997							1990	
	Direct public expenditure for educational institutions	Public subsidies to households and other private entities excluding public subsidies for student living costs	Private payments to educational institutions excluding public subsidies to households and other private entities	Total expenditure from both public and private sources for educational institutions	Total expenditure from public, private and international sources for educational institutions **plus** public subsidies to households	Private payments other than to educational institutions	Financial aid to students **not** attributable to household payments to educational institutions for educational services	Direct public expenditure for educational institutions	Total expenditure from both public and private sources for educational institutions
OECD countries									
Australia	4.3	0.20	1.09	5.6	6.1	0.5	0.48	4.3	4.9
Austria	6.0	0.04	0.45	6.5	6.7	m	0.23	5.2	m
Belgium (Fl.)	4.8	0.04	0.36	5.2	5.4	0.2	0.23	4.8	m
Canada	5.4	0.45	0.70	6.5	6.7	0.4	0.19	5.4	5.7
Czech Republic	4.5	n	0.65	5.2	5.5	m	0.27	m	m
Denmark	6.5	n	0.31	6.8	8.2	1.4	1.43	6.2	6.4
Finland	6.3	0.02	x	6.3	6.9	m	0.54	6.4	6.4
France	5.8	0.12	0.40	6.3	6.4	0.3	0.13	5.1	5.6
Germany	4.5	n	1.16	5.7	5.9	0.3	0.29	m	m
Greece	3.5	m	1.40	4.9	4.9	m	m	m	m
Hungary	4.5	0.04	0.60	5.2	5.3	m	0.09	5.0	5.3
Iceland	5.1	x	0.56	5.7	6.0	m	0.30	4.3	4.8
Ireland	4.5	0.09	0.41	5.0	5.5	m	0.46	4.7	5.2
Italy	4.6	0.05	0.15	4.8	4.9	0.4	0.08	5.8	m
Japan	3.6	m	1.17	4.8	m	m	m	3.6	4.7
Korea	4.4	m	2.94	7.4	7.4	m	n	m	m
Luxembourg	4.2	0.06	m	m	m	m	0.10	m	m
Mexico	4.5	n	0.95	5.5	5.6	0.3	0.11	3.2	m
Netherlands	4.3	0.24	0.14	4.7	5.1	0.6	0.44	m	m
New Zealand	6.1	x	m	m	m	m	1.19	5.5	m
Norway	6.6	m	m	m	m	m	m	m	m
Poland	5.8	0.37	m	m	m	m	0.06	m	m
Portugal	5.8	a	0.02	5.8	5.9	0.1	0.11	4.3	m
Spain	4.7	0.03	0.94	5.7	5.8	0.5	0.10	4.2	4.9
Sweden	6.8	a	0.17	6.9	8.5	m	m	m	m
Switzerland	5.4	0.07	0.49	6.0	6.1	0.1	0.11	5.0	m
Turkey	m	m	m	m	m	m	m	3.2	3.2
United Kingdom	4.6	0.17	m	m	m	m	0.27	4.3	m
United States	5.2	m	1.70	6.9	7.1	0.1	m	m	m
Country mean	**5.1**	**0.09**	**0.76**	**5.8**	**6.1**	**0.4**	**0.31**	**4.8**	**5.2**
OECD total	**4.8**	**0.10**	**1.23**	**6.1**	**6.5**	**0.3**	**0.21**	**4.4**	**5.0**
WEI participants									
Argentina	3.7	n	0.71	4.4	4.4	n	n	m	m
Brazil[1]	4.8	m	m	m	m	m	m	m	m
Chile	3.2	0.12	2.52	5.9	5.9	m	0.03	m	m
Israel[2]	7.5	0.12	1.74	9.4	9.4	0.6	n	m	m
Malaysia	4.4	n	0.32	4.7	4.7	0.1	n	m	m
Paraguay	3.7	n	m	m	m	n	n	m	m
Philippines	3.0	0.02	1.42	4.4	4.5	1.6	a	m	m
Thailand	4.5	m	m	m	m	m	m	m	m
Uruguay	2.6	a	m	m	m	a	a	m	m
Zimbabwe	6.5	n	n	6.5	6.8	n	0.29	m	m

[1] 1996 data

[2] 1995 data

Source OECD Education Database See Annex 3 for notes

Table B1.1*b.* **Educational expenditure as a percentage of GDP for primary, secondary and post-secondary non-tertiary education, by source of funds (1997)**

	Direct public expenditure for educational institutions	Public subsidies to households and other private entities excluding public subsidies for student living costs	Private payments to educational institutions excluding public subsidies to households and other private entities	Total expenditure from both public and private sources for educational institutions	Total expenditure from public, private and international sources for educational institutions **plus** public subsidies to households	Private payments other than to educational institutions	Financial aid to students **not** attributable to household payments to educational institutions for educational services
OECD countries							
Australia	3.3	0.02	0.53	3.9	4.2	0.3	0.29
Austria	4.2	0.01	0.13	4.3	4.3	m	0.01
Belgium (Fl.)	3.3	n	0.21	3.6	3.6	m	0.01
Canada	4.0	m	0.33	4.3	4.3	m	m
Czech Republic	3.2	n	0.45	3.6	3.8	m	0.20
Denmark	4.3	n	0.09	4.4	5.0	0.7	0.66
Finland	3.8	m	x	3.8	4.0	m	0.19
France	4.1	0.09	0.23	4.4	4.4	0.2	0.07
Germany	2.9	n	0.91	3.8	3.9	0.2	0.15
Greece	2.5	m	1.22	3.7	3.7	m	m
Hungary	2.9	n	0.26	3.2	3.2	m	0.02
Iceland	3.9	x	0.21	4.1	4.2	m	0.06
Ireland	3.4	n	0.12	3.5	3.7	m	0.18
Italy	3.4	n	n	3.4	3.4	0.1	0.03
Japan	2.8	m	0.25	3.1	3.1	a	m
Korea	3.4	n	0.88	4.3	4.3	m	a
Luxembourg[1]	4.1	0.06	m	m	m	m	m
Mexico	3.3	n	0.62	3.9	4.0	0.2	0.04
Netherlands	2.9	0.10	0.11	3.1	3.3	0.3	0.18
New Zealand	4.7	x	m	m	m	m	0.34
Norway	4.4	m	m	m	m	m	m
Poland	3.8	0.10	m	m	m	m	0.01
Portugal	4.4	a	n	4.4	4.5	0.1	0.06
Spain	3.5	n	0.45	3.9	4.0	0.3	0.03
Sweden	4.7	a	0.01	4.7	5.6	m	0.88
Switzerland	4.0	0.05	0.49	4.5	4.6	0.1	0.07
Turkey	m	m	m	m	m	m	m
United Kingdom	3.4	0.01	m	m	m	m	0.02
United States[1]	3.5	m	0.36	3.8	3.8	n	m
Country mean	**3.6**	**0.02**	**0.36**	**3.9**	**4.0**	**0.2**	**0.16**
OECD total	**3.4**	**0.02**	**0.38**	**3.7**	**3.8**	**0.1**	**0.10**
WEI participants							
Argentina	2.7	a	0.26	3.0	3.0	a	a
Brazil[2]	3.5	m	m	m	m	m	m
Chile	2.5	a	1.15	3.7	3.7	m	0.01
India[1]	1.9	m	0.09	2.0	2.0	m	n
Israel[1, 3]	5.1	0.05	0.33	5.4	5.4	0.3	n
Jordan[1]	4.7	a	m	m	m	m	a
Malaysia	3.0	n	n	3.0	3.0	n	0.01
Paraguay	3.0	a	m	m	m	n	a
Philippines	2.4	0.02	0.49	2.9	2.9	1.2	a
Thailand[1]	2.4	m	m	m	m	m	m
Uruguay	1.8	a	m	m	m	a	a
Zimbabwe	5.0	n	n	5.0	5.1	n	0.19

[1] Excluding post-secondary non-tertiary.

[2] 1996 data.

[3] 1995 data.

Source: OECD Education Database. See Annex 3 for notes.

Table B1.1c. **Educational expenditure as a percentage of GDP for tertiary education, by source of funds (1997)**

	Direct public expenditure for educational institutions	Public subsidies to households and other private entities excluding public subsidies for student living costs	Private payments to educational institutions excluding public subsidies to households and other private entities	Total expenditure from both public and private sources for educational institutions	Total expenditure from public, private and international sources for educational institutions **plus** public subsidies to households	Private payments other than to educational institutions	Financial aid to students **not** attributable to household payments to educational institutions for educational services
OECD countries							
Australia	1.0	0.18	0.53	1.7	1.9	0.2	0.19
Austria	1.3	0.03	0.17	1.5	1.7	m	0.20
Belgium (Fl.)	0.8	0.04	0.10	0.9	1.2	m	0.22
Canada	1.2	0.45	0.35	2.0	2.2	0.4	0.19
Czech Republic	0.7	n	0.11	0.8	0.9	m	0.07
Denmark	1.1	n	0.01	1.2	1.8	0.6	0.63
Finland	1.7	0.02	x	1.7	2.0	m	0.35
France	1.0	0.03	0.14	1.2	1.2	0.1	0.06
Germany	1.0	n	0.08	1.1	1.2	0.1	0.13
Greece	1.0	m	0.18	1.2	1.2	m	m
Hungary	0.8	0.04	0.22	1.0	1.1	m	0.08
Iceland	0.7	x	0.04	0.7	1.0	m	0.25
Ireland	1.0	0.09	0.29	1.4	1.7	m	0.28
Italy	0.6	0.05	0.15	0.8	0.9	0.4	0.05
Japan	0.5	m	0.58	1.1	m	m	m
Korea	0.5	m	1.95	2.5	2.5	m	n
Luxembourg	0.1	n	m	m	m	m	0.09
Mexico	0.8	n	0.27	1.1	1.2	n	0.07
Netherlands	1.1	0.12	0.03	1.2	1.5	0.3	0.25
New Zealand	1.0	x	m	m	m	m	0.80
Norway	1.3	x	0.09	1.4	2.1	n	0.74
Poland	1.2	m	m	m	m	m	0.05
Portugal	1.0	a	0.02	1.0	1.1	n	0.05
Spain	0.9	0.03	0.27	1.2	1.3	0.1	0.06
Sweden	1.6	n	0.16	1.7	2.4	m	0.62
Switzerland	1.1	0.01	n	1.1	1.2	n	0.04
Turkey	0.8	m	m	m	m	m	m
United Kingdom	0.7	0.16	0.12	1.0	1.3	m	0.25
United States[1]	1.4	m	1.29	2.7	2.9	0.1	m
Country mean	**1.0**	**0.06**	**0.31**	**1.3**	**1.5**	**0.2**	**0.23**
OECD total	**1.0**	**0.08**	**0.70**	**1.7**	**2.0**	**0.1**	**0.14**
WEI participants							
Argentina	0.8	n	0.29	1.0	1.1	n	n
Brazil[2]	0.8	m	m	m	m	m	m
Chile	0.4	0.12	1.24	1.8	1.8	m	0.02
Israel[3]	1.2	0.05	0.77	2.0	2.0	n	n
Malaysia	1.1	n	0.28	1.4	1.6	n	0.27
Paraguay	0.7	a	m	m	m	n	a
Philippines	0.5	0.01	0.93	1.4	1.4	0.4	a
Thailand	1.0	m	m	m	m	m	m
Uruguay	0.6	a	m	m	m	a	a
Zimbabwe	1.5	n	n	1.5	1.7	n	0.19

[1] Includes post-secondary non-tertiary data.
[2] 1996 data.
[3] 1995 data.

Source: OECD Education Database. See Annex 3 for notes.

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Table B1.1*d*. Educational expenditure from public and private sources for educational institutions as a percentage of GDP by level of education (1997)

	Pre-primary education	Primary and secondary education				Tertiary education			All levels of education combined (including undistributed)
		All	Primary and lower secondary	Upper secondary	Post-secondary non-tertiary	All	Tertiary-type B (ISCED 5B)	Tertiary-type A and advanced research programmes (ISCED 5A and 6)	
OECD countries									
Australia	0.1	3.9	2.8	1.0	0.1	1.7	0.2	1.5	5.6
Austria	0.5	4.3	2.7	1.5	n	1.5	0.5	1.0	6.5
Belgium (Fl.)	0.5	3.6	x	x	x	0.9	x	0.9	5.2
Canada	0.2	4.3	x	x	0.2	2.0	0.6	1.4	6.5
Czech Republic	0.6	3.6	2.3	1.3	0.1	0.8	0.1	0.7	5.2
Denmark	1.0	4.4	2.8	1.5	n	1.2	x	x	6.8
Finland	0.7	3.8	2.6	1.2	x	1.7	0.3	1.4	6.3
France	0.7	4.4	2.8	1.5	n	1.2	0.3	0.9	6.3
Germany	0.5	3.8	2.2	1.3	0.3	1.1	0.1	1.0	5.7
Greece	x	3.7	x	x	n	1.2	0.3	0.9	4.9
Hungary	0.8	3.2	2.0	1.1	0.1	1.0	a	1.0	5.2
Iceland	0.3	4.1	2.6	1.3	x	0.7	n	0.6	5.7
Ireland	n	3.5	2.6	0.8	0.1	1.4	x	x	5.0
Italy	0.4	3.4	2.0	1.3	n	0.8	n	0.8	4.8
Japan	0.2	3.1	2.1	0.9	x	1.1	0.1	0.9	4.8
Korea	0.1	4.3	3.0	1.3	a	2.5	0.7	1.8	7.4
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	0.5	3.9	3.0	0.9	a	1.1	x	1.1	5.5
Netherlands	0.4	3.1	2.3	0.8	x	1.2	n	1.2	4.7
New Zealand	m	m	m	m	m	m	m	m	m
Norway	0.6	m	m	m	m	1.4	x	x	m
Poland	m	m	m	m	m	m	m	m	m
Portugal	m	4.4	x	x	a	1.0	x	x	5.8
Spain	0.4	3.9	2.0	2.0	x	1.2	x	x	5.7
Sweden	0.6	4.7	3.2	1.5	x	1.7	x	x	6.9
Switzerland	0.2	4.5	2.9	1.6	0.1	1.1	0.1	1.0	6.0
Turkey	m	m	m	m	a	m	m	m	m
United Kingdom	0.4	m	m	m	m	1.0	x	x	m
United States[1]	0.4	3.8	x	x	x	2.6	x	x	6.9
Country mean	**0.4**	**3.9**	**2.5**	**1.3**	**0.1**	**1.3**	**0.2**	**1.1**	**5.8**
OECD total	**0.4**	**3.9**	**2.4**	**1.2**	**0.1**	**1.7**	**0.2**	**1.0**	**6.1**
WEI participants									
Argentina	0.4	3.0	2.4	0.6	a	1.0	0.4	0.7	4.4
Chile	0.4	3.7	2.6	1.0	a	1.8	0.2	1.6	5.9
Israel[2]	0.9	5.4	2.8	2.6	x	2.0	x	x	9.4
Malaysia	0.1	3.0	x	x	n	1.4	0.4	0.9	4.7
Philippines	m	2.9	2.6	0.2	0.1	1.4	a	0.5	4.4
Zimbabwe	x	5.0	5.0	x	x	1.5	0.6	0.8	6.5

[1] Post-secondary non-tertiary data included in tertiary education.

[2] 1995 data.

Source: OECD Education Database. See Annex 3 for notes.

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Table B1.2 Index of the change in public and private expenditure on education between 1990 and 1996, by level of education (1990 = 100)

	All levels of education				Primary and secondary education				Tertiary education			
	Direct **public** expenditure for educational institutions	Direct **public** expenditure for educational institutions **plus** public subsidies to the private sector	Direct **private** expenditure for educational institutions	Total direct expenditure from both public and private sources for educational institutions	Direct **public** expenditure for educational institutions	Direct **public** expenditure for educational institutions **plus** public subsidies to the private sector	Direct **private** expenditure for educational institutions	Total direct expenditure from both public and private sources for educational institutions	Direct **public** expenditure for educational institutions	Direct **public** expenditure for educational institutions **plus** public subsidies to the private sector	Direct **private** expenditure for educational institutions	Total direct expenditure from both public and private sources for educational institutions
Australia	120	122	168	129	116	117	146	120	132	137	190	150
Austria	129	132	m	m	127	127	m	m	128	141	m	m
Belgium (Fl.)	112	111	m	m	109	109	m	m	109	105	m	m
Canada	108	111	141	115	111	111	128	112	98	111	145	120
Denmark	124	125	235	127	112	115	x	x	113	114	x	x
Finland	97	101	x	97	90	93	x	90	128	135	x	128
France	117	118	105	117	113	114	101	113	132	135	115	131
Hungary	61	62	122	66	60	60	96	62	56	60	235	73
Ireland	139	141	139	141	132	136	90	134	164	156	167	159
Italy	82	82	m	m	84	85	m	m	74	78	m	m
Mexico	137	139	m	m	147	149	m	m	92	95	m	m
Netherlands	106	102	118	103	108	104	112	105	97	92	126	95
New Zealand	123	133	m	m	127	132	m	m	107	135	m	m
Norway	115	117	m	m	107	110	m	m	132	129	m	m
Portugal	147	150	m	m	140	140	m	m	147	149	m	m
Spain	119	119	154	124	113	113	118	114	140	142	201	152
Switzerland	106	107	m	m	108	109	m	m	99	99	m	m
United Kingdom	113	117	m	m	112	110	m	m	114	143	752	148

Source OECD Education Database See Annex 3 for notes

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Table B1.3. **Public expenditure on education as a percentage of total public expenditure by level of education**

	1997						1990	
	Total: direct expenditure plus public subsidies to the private sector			Direct public expenditure for educational services			All levels of education combined	
	Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	Primary, secondary and post-secondary non-tertiary education	Tertiary education	All levels of education combined	Total: direct expenditure plus public subsidies to the private sector	Direct public expenditure for educational services
OECD countries								
Australia	9.5	3.5	13.2	8.7	2.6	11.4	12.9	11.5
Austria	m	m	m	m	m	m	10.8	10.6
Belgium (Fl.)	m	m	m	m	m	m	m	m
Canada	8.6	4.0	13.0	8.6	2.6	11.6	12.3	11.3
Czech Republic	8.7	2.0	12.3	8.2	1.8	11.6	m	m
Denmark	m	m	m	m	m	m	13.0	10.6
Finland	7.0	3.6	12.1	6.7	3.0	11.2	14.2	13.6
France	7.8	2.0	11.1	7.5	1.8	10.6	10.6	10.3
Germany	6.2	2.3	9.8	5.9	2.0	9.2	m	m
Greece	m	m	m	m	m	m	m	m
Hungary	9.7	2.9	15.2	9.6	2.5	14.8	m	m
Iceland	10.5	2.4	14.3	10.4	1.7	13.5	13.9	10.7
Ireland	9.8	3.8	13.8	9.3	2.7	12.3	12.3	11.4
Italy	6.6	1.4	9.1	6.5	1.2	8.9	m	10.8
Japan	7.8	1.3	10.1	7.8	1.3	10.1	m	11.4
Korea	12.9	2.1	16.7	12.9	2.1	16.7	m	m
Luxembourg	m	m	m	m	m	m	m	m
Mexico	m	m	m	m	m	m	16.6	16.5
Netherlands	6.5	3.0	10.2	5.9	2.2	8.8	m	m
New Zealand	13.0	4.8	18.8	12.1	2.7	15.8	m	m
Norway	10.5	4.6	17.4	9.9	2.9	15.0	14.0	12.1
Poland	13.5	4.4	22.1	13.4	4.2	20.6	m	m
Portugal	m	m	m	m	m	m	m	m
Spain	m	m	m	m	m	m	10.1	9.9
Sweden	m	m	m	m	m	m	m	m
Switzerland	11.0	3.2	14.9	10.7	3.0	14.4	m	m
Turkey	m	m	m	m	m	m	m	m
United Kingdom	8.2	2.7	12.0	8.2	1.8	11.0	10.7	10.1
United States[1]	10.2	4.8	16.0	10.2	4.0	15.3	m	m
Country mean	**9.5**	**3.2**	**14.0**	**9.2**	**2.5**	**13.0**	**12.6**	**11.5**
WEI participants								
Argentina	10.2	2.9	13.9	x	x	x	m	m
Brazil[2]	12.2	3.2	16.9	x	x	x	m	m
Chile	11.8	2.6	15.9	x	x	x	m	m
Malaysia	9.1	4.1	14.1	x	x	x	m	m
Paraguay	15.4	3.7	19.1	x	x	x	m	m
Philippines	22.7	4.5	28.3	x	x	x	m	m
Thailand	11.5	4.7	21.9	x	x	x	m	m
Uruguay	8.2	2.6	11.8	x	x	x	m	m
Zimbabwe	16.7	5.4	22.0	x	x	x	m	m

[1] Post-secondary non-tertiary is included in tertiary education and excluded from primary, secondary and post-secondary non-tertiary education.

[2] 1996 data.

Source: OECD Education Database. See Annex 3 for notes.

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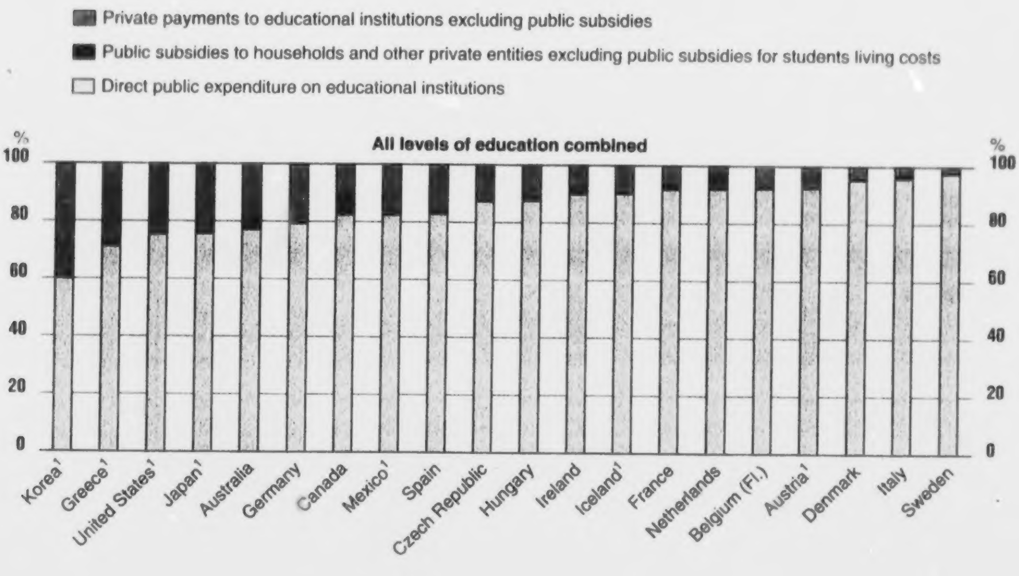
RELATIVE PROPORTIONS OF PUBLIC AND PRIVATE INVESTMENTS IN EDUCATION

- After transfers, the proportion of educational funds from the private sector ranges from 2 per cent in Sweden to as much as 40 per cent in Korea.
- The private proportion of educational expenditure is generally higher at the tertiary level than at other levels of education.
- With the exception of Finland and Sweden, at least some students are enrolled in every country in tertiary institutions that charge tuition and other fees.
- Rises in tuition and other fees have generally not led to decreases in public expenditure on education.

Chart B2.1. **Distribution of expenditure on educational institutions, all levels of education combined (1997)**



1. Total public subsidies to households are partly included in private payments.

Countries are ranked in ascending order of direct public expenditure.

Source: OECD Education Database. See Annex 3 for notes.

POLICY CONTEXT

Cost-sharing between participants in the education system and society as a whole is an issue that is under discussion in many countries. This question is especially relevant at the beginning and ending stages of education – early childhood and tertiary education – in which full or nearly full public funding is less common in some countries.

This indicator shows the relative proportions of public and private investment in education...

With increased participation drawing from new client groups and a wider range of educational opportunities, programmes and providers, governments are forging new partnerships to mobilise the necessary resources to pay for education. New policies are designed to allow the different actors and stakeholders to participate more fully and to share costs and benefits more equitably.

... and how these proportions changed since 1990.

As a result, public funding is now increasingly seen as providing only a part, although a very important part, of the investment in education. Private sources are playing an increasingly important role in the funding of education. Many countries are concerned that this balance should not become so tilted as to lead potential learners away from learning, instead of towards it.

EVIDENCE AND EXPLANATIONS

Public and private proportions of expenditure on educational institutions

Education is still a mainly public enterprise, although there is a substantial and growing degree of private funding of its "visible costs". Table B2.1 shows the relative proportions of funds for educational institutions that come from public and private sources. The first set of columns shows the distribution of the source of expenditure before public-to-private or private-to-public transfers have occurred. These reflect the original source of funds spent on education. The second set of columns shows expenditures after all transfers have occurred, reflecting the identities of the final spenders of funds on educational institutions. For example, final funds from private sources would capture all educational fees (such as tuition fees) paid to educational institutions, including the proportion supported by public subsidies to households.

Education is still a mainly public enterprise, although there is a substantial and growing degree of private funding of its "visible costs".

Among the OECD countries reporting data, the proportion of initial funding for educational institutions originating in the private sector ranges from 3 per cent or below in Italy, the Netherlands and Sweden to over 18 per cent in Australia and Germany.

After transfers, the proportion of final educational funds originating in the private sector increases in almost every country, with the exception of the Czech Republic, Denmark and Sweden where it stays the same. The proportion of private sector spending increases most, after transfers, in Canada and the Netherlands. Data on both private expenditure on educational institutions and on the proportion of public subsidies that are spent on educational institutions are unavailable for a number of countries. It can be assumed however that in all countries that report final funds but not initial sources of funds, public-to-private transfers play an important role in the financing of education. After transfers, the proportion of funding originating in the private sector ranges from 2 per cent in Sweden, to as high as 40 per cent in Korea.

Private expenditures after transfers increase the proportion of private sector spending in Australia, Canada, Ireland, Italy and the Netherlands.

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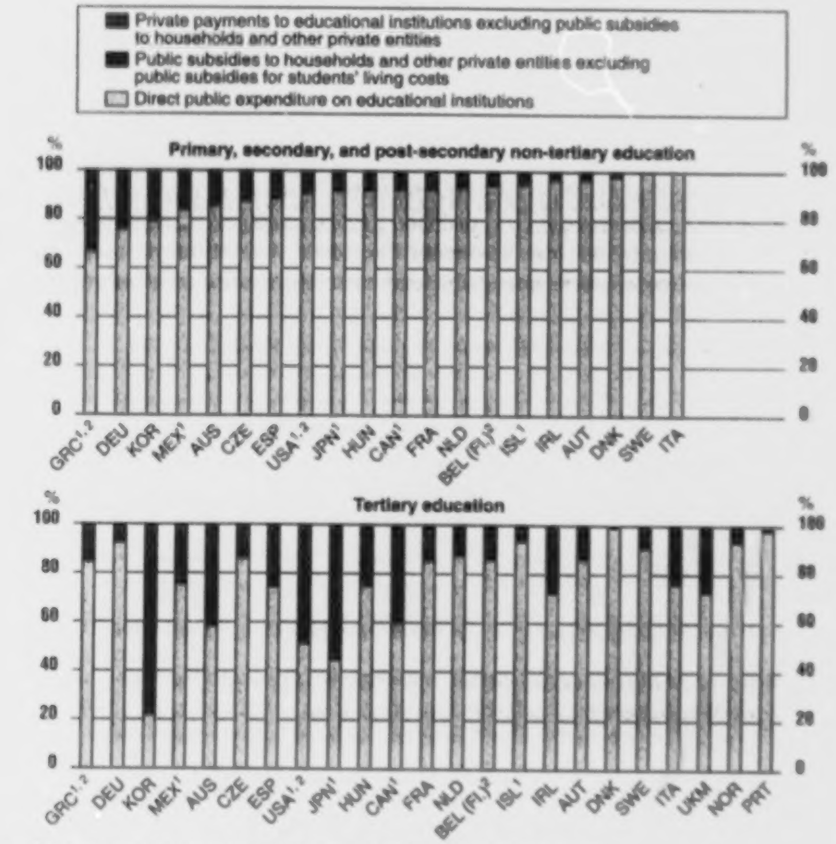
Chart B2.2. **Distribution of expenditure on educational institutions, by level of education (1997)**

Although education at all levels remains largely a public enterprise, the private proportion of education expenditure is highest at the tertiary level.



1. Total public subsidies to households may be included in private payments.
2. Post-secondary non-tertiary is included in tertiary or is missing.

Countries are ranked in ascending order of direct public expenditure at the primary, secondary, and post-secondary non-tertiary level.

Source: OECD Education Database. See Annex 3 for notes.

In Korea and the US, private spending largely originates in households, whereas in Germany it comes primarily from business enterprises.

In Korea and the United States, private sector expenditure is comprised mainly of household expenditure on tuition and other fees in tertiary institutions; in Germany nearly all private expenditure is accounted for by contributions from the business sector to the dual system of apprenticeship at the upper secondary level.

The proportion of private investment in education is highest in tertiary education.

In the majority of OECD countries, the private proportion of educational expenditure is higher at the tertiary level than at other levels of education. Differences between countries are also greatest in tertiary education. The proportion of expenditure on tertiary institutions covered by individuals, business and other private sources, net of public financial aid to students, ranges from 2 per cent or less in Denmark and Portugal to over 25 per cent in the Australia, Canada, Ireland, United Kingdom and the United States. In Japan and Korea over 50 per cent of final funds originate from private sources.

The amounts paid by students and their families to cover tuition fees and other education-related expenditure differ between countries according to taxation and spending policies, and the willingness of governments to support students. This willingness, in turn, is influenced by students' enrolment status (full-time or part-time), age, and whether they are living at home (Indicator B3). To some extent, however, the guidelines use in establishing eligibility for these subsidies are breaking down. Mature students, whose numbers are increasing (Indicator C3), are more likely to have established their own households and to prefer part-time or distance learning to full-time, on-campus study.

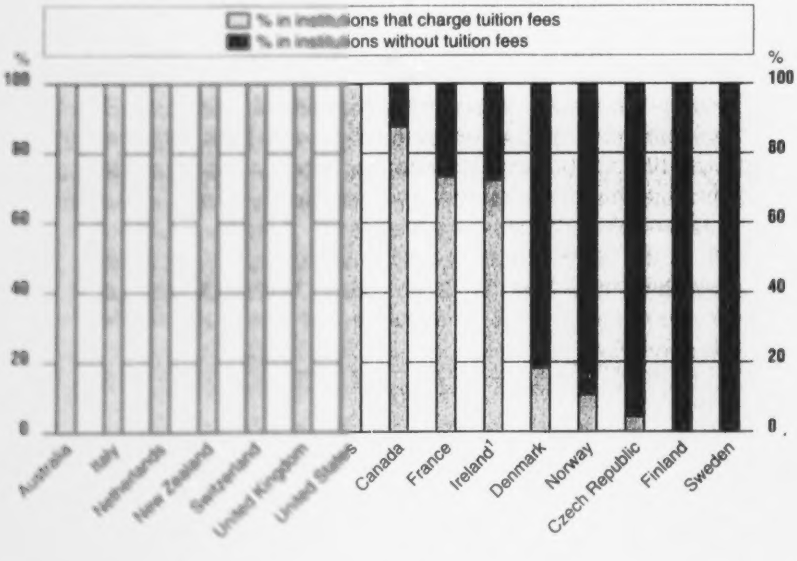
If public and private proportions of educational spending are totalled as percentages of GDP (Indicator B1) it is evident that some of the countries with the highest total spending relative to national income, such as Canada, Korea and the United States, muster these resources with substantial help from private sources. Conversely, in countries with relatively low overall spending, such as Ireland, Italy and the Netherlands, private individuals tend to contribute relatively little. Of course, there are exceptions to this pattern.

Some of the highest-spending countries muster these resources with substantial help from private sources.

In 13 out of 15 OECD countries reporting data, at least some students are enrolled in tertiary institutions that charge tuition and other fees (Chart B2.3). The percentage of students in such institutions ranges from 4 per cent in the Czech Republic to 100 per cent in Australia, Italy, the Netherlands, New Zealand, Switzerland, the United Kingdom and the United States. In Finland and Sweden, no tertiary institutions charge tuition fees.

In seven* OECD *countries,* 100 *per cent of tertiary students are enrolled in institutions that charge tuition fees.

Chart B2.3. **Percentage of students enrolled in institutions that charge tuition fees, tertiary education (1997)**



1. See note on Ireland in Table B2.2.

Countries are ranked in descending order of share of students in institutions that charge tuition fees.

Source: OECD.

Finland and Sweden are the only two countries where no students are enrolled in institutions that charge tuition fees at the tertiary level.

Changes in public and private investments in education

The importance of families in financing education has increased.

Direct private expenditure on educational institutions increased between 1990 and 1996 in all countries reporting data. This increase was not uniform across countries, however, ranging from 5 per cent in France to over 50 per cent in Australia, Denmark and Spain (Chart B2.4).

Changes are most striking in tertiary education where a dramatic growth in participation represents a strong response to demand.

Changes are most striking in tertiary education. In many countries, the growth in tertiary participation (Indicator C3) represents a strong response to demand, both individual and social. But, as tertiary structures and programmes were designed for a different time, so too were its funding mechanisms. Hence as demand for tertiary education has increased in many countries, so has the share of the financial burden borne by families. In every country with available data, the index of change in direct private expenditure is much greater in respect of tertiary institutions than in respect of primary and secondary institutions.

The increase in private household spending at the tertiary level is explained by one or more of four factors: *i)* an increase in enrolments, *ii)* increased or newly imposed fees, charges or contributions, *iii)* an increase in the costs of education-related goods and services other than institutions, and *iv)* increased enrolment in private institutions with higher fees.

Rises in tuition fees and enrolments in private institutions have generally not led to a decline in public expenditure.

Rises in tuition fees and in educational costs have not generally meant that increased private spending has been accompanied by falls in public expenditure on education. On the contrary, Chart B2.4 shows that public investment in education has also increased in most countries for which 1990-96 data are available. In fact, some of the countries with the highest growth in private spending have also shown the highest increase in public funding of education.

In Hungary, there was a clear shift in the relative proportions of public and private investments in tertiary education between 1990 and 1996. There, the proportion of direct public expenditures on tertiary institutions diminished by almost half while that of direct private expenditures more than doubled. This can be explained partly by the large increase in tertiary enrolments in Hungary since 1990. In the Netherlands, public funding decreased slightly, although private spending increased by 26 per cent. There, as well as in Canada, household spending on tertiary education has grown at a much greater rate than public spending.

New funding strategies also aim at influencing student behaviour in ways that make education more cost-effective.

New funding strategies aim not only at mobilising the required resources from a wider range of public and private sources, but also at influencing student behaviour in ways that make education more cost-effective. It is hard to determine the precise impact of tuition charges on learner behaviour, partly because they cannot be seen in isolation from grants, tax expenditures and implicit subsidies through loans. But many countries in which students and their families spend more on tertiary education show some of the highest tertiary participation rates (Indicator C3).

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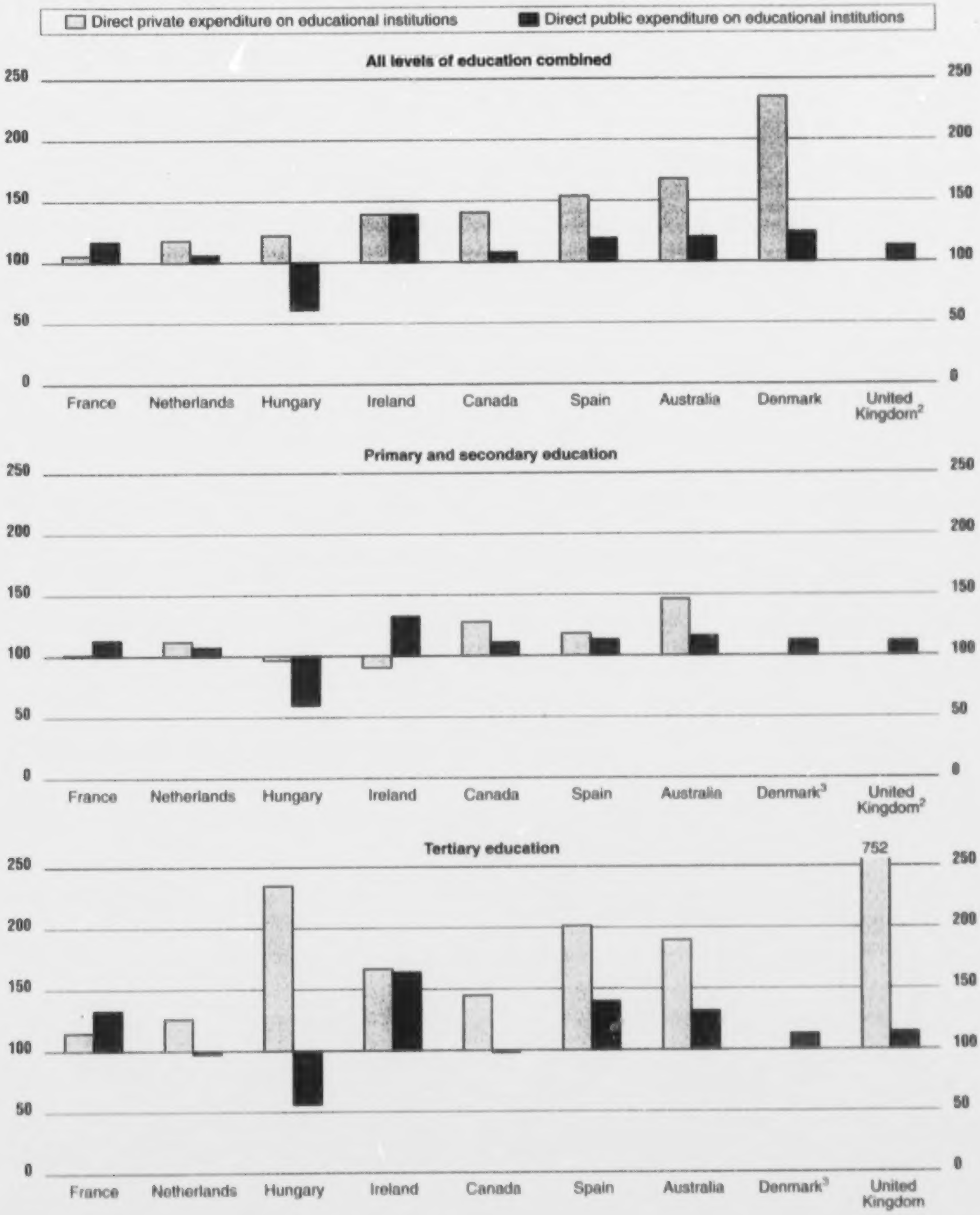
Chart B2.4. **Index of change in public and private expenditure on education between 1990 and 1996 (1990 = 100)**[1]



1. Data for this chart are included in Table B1.2.
2. Direct private expenditure on educational institutions data are missing.
3. Direct private expenditure on educational institutions cannot be broken down by level.

Countries are ranked in ascending magnitude of change in private expenditure on education at all levels of education combined.

Source: OECD.

DEFINITIONS

Data refer to the financial year 1997 and are based on the UOE data collection on education statistics administered in 1999 (for details see Annex 3).

The initial public and private proportions of educational expenditure are the percentages of total education spending originating in, or generated by, the public and private sectors. Initial public spending includes both direct public expenditure on educational institutions and transfers to the private sector. Initial private spending includes tuition fees and other student or household payments to educational institutions, less the portion of such payments offset by public subsidies. The final public and private proportions are the percentages of educational funds spent directly by public and private purchasers of educational services. Final public spending includes direct public purchases of educational resources and payments to educational institutions and other private entities. Final private spending includes tuition fees and other private payments to educational institutions (whether or not offset by public subsidies).

The data used for computing the index of change have been restricted to the years 1990-96 and are based on the ISCED-76 classification.

Because of the implementation of the new ISCED-97 classification, post-1996 data on educational funding are not comparable with earlier data. The data used for computing the index of change have therefore been restricted to the years 1990-96 for comparability purposes, and are based on the ISCED-76 classification. There is no reason to expect that the change in ISCED classification would affect the magnitude of the trend observed in the various countries, since both starting and ending points would be adjusted similarly.

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Table B2.1 Distribution of public and private sources of funds for educational institutions before (initial funds) and after (final funds) transfers from public sources, by level of education (1997)

	Initial funds (the original source of funds spent on educational institutions)						Final funds (after public-to-private or private-to-public transfers have occurred)					
	Primary, secondary and post-secondary non-tertiary education		Tertiary education		All levels of education combined		Primary, secondary and post-secondary non-tertiary education		Tertiary education		All levels of education combined	
	Public sources	Private sources	Public sources	Private sources	Public sources	Private sources	Public sources	Private sources	Public sources	Private sources	Public sources	Private sources
Australia	86	14	69	31	81	19	86	14	58	42	77	23
Austria	97	3	m	m	m	m	97	3	86	14	92	8
Belgium (Fl.)[1]	94	6	90	10	93	7	94	6	86	14	92	8
Canada	m	m	82	18	89	11	92	8	60	40	82	18
Czech Republic	88	12	86	14	87	13	88	12	86	14	87	13
Denmark	98	2	99	1	95	5	98	2	99	1	95	5
Finland	m	m	m	m	m	m	m	m	m	m	m	m
France	95	5	88	12	94	6	93	7	85	15	92	8
Germany	76	24	93	7	79	21	76	24	92	8	79	21
Greece[1]	m	m	m	m	m	m	67	33	85	15	71	29
Hungary	92	8	79	21	88	12	92	8	75	25	88	12
Iceland	m	m	m	m	m	m	95	5	94	6	90	10
Ireland	97	3	79	21	92	8	97	3	72	28	90	10
Italy	100	n	82	18	97	3	100	n	76	24	96	4
Japan	m	m	m	m	m	m	92	8	45	55	76	24
Korea	79	21	m	m	m	m	79	21	22	78	60	40
Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
Mexico	m	m	m	m	m	m	84	16	75	25	82	18
Netherlands	96	4	97	3	97	3	93	7	87	13	92	8
New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
Norway	m	m	93	7	m	m	m	m	93	7	m	m
Poland	m	m	m	m	m	m	m	m	m	m	m	m
Portugal	m	m	98	2	m	m	m	m	98	2	m	m
Spain	88	12	77	23	83	17	88	12	75	25	83	17
Sweden	100	n	91	9	98	2	100	n	91	9	98	2
Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
Turkey	m	m	m	m	m	m	m	m	m	m	m	m
United Kingdom	m	m	88	12	m	m	m	m	73	27	m	m
United States[1]	m	m	m	m	m	m	91	9	51	49	75	25
Country mean	**91**	**8**	**87**	**13**	**90**	**10**	**90**	**10**	**77**	**23**	**85**	**15**

1. Post-secondary non-tertiary data are included in tertiary education or are missing.

Source: OECD Education Database. See Annex 3 for notes.

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Table B2.2. **Percentage of students in institutions that charge tuition fees at the tertiary level of education (1997)**

	Tertiary-type B programmes		Tertiary-type A and advanced research programmes		All tertiary education	
	% in institutions that charge tuition fees	% in institutions without tuition fees	% in institutions that charge tuition fees	% in institutions without tuition fees	% in institutions that charge tuition fees	% in institutions without tuition fees
Australia	100	a	100	a	100	a
Canada	83	17	92	8	88	12
Czech Republic	19	81	a	100	4	96
Denmark	x	x	x	x	18	82
Finland	a	100	a	100	a	100
France	x	x	x	x	73	27
Germany	m	m	n	100	m	m
Ireland[1]	90	10	61	39	72	28
Italy	100	a	100	a	100	a
Netherlands	100	a	100	a	100	a
Norway	28	72	9	91	11	89
New Zealand	100	a	100	a	100	a
Sweden	a	100	a	100	a	100
Switzerland	100	a	100	a	100	a
United Kingdom	100	a	100	a	100	a
United States	100	a	99	1	100	n

[1] Irish institutions are here artificially split by undergraduate and graduate students, since undergraduate students are generally exempt from tuition fees.

Source: OECD special survey on public subsidies.

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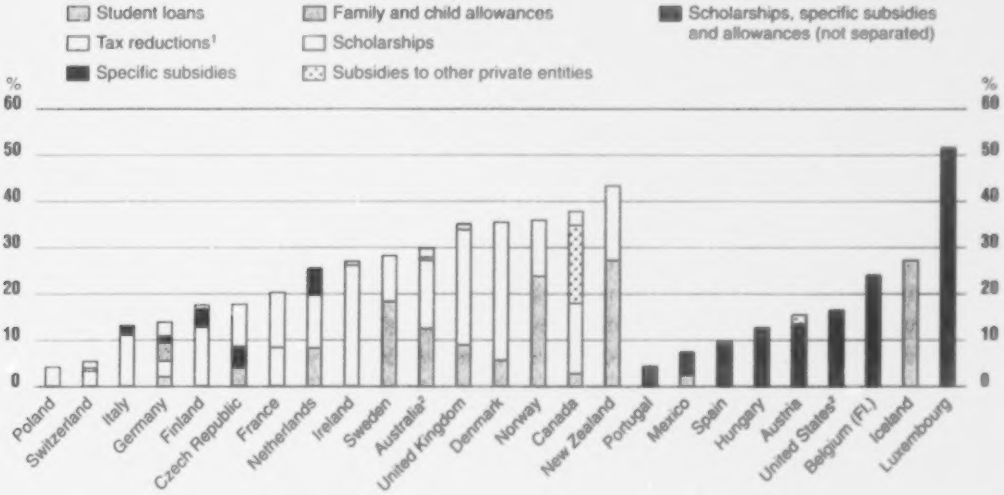
PUBLIC SUBSIDIES TO HOUSEHOLDS

- On average, 19 per cent of governmental spending on tertiary education is devoted to supporting students and households.
- Countries provide assistance either in the form of conditional aid (*e.g.*, dependent on parents' income) or through unconditional subsidies (*e.g.*, family allowances or tax reductions).
- Countries differ in the mixture of loans and grants that they provide for students. Loans can reduce the real cost of subsidies, since they are expected to be repaid.
- In most countries, the decision on how to spend public subsidies on education is left to the beneficiaries.

Chart B3.1. **Public subsidies to households and private entities and tax reductions as a percentage of total public expenditure on tertiary education, by type of subsidy (1997)**



1. Tax reductions are not included in total public expenditure (for countries that provide tax reduction, the total of public expenditure plus subsidies plus tax reduction exceeds 100 per cent).
2. United States: Loans included in scholarships and other grants. Australia: Some tax reductions are attributable to primary and secondary education.

Countries are ranked in ascending order of public subsidies within total public expenditure on education.

Source: OECD.

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POLICY CONTEXT

This indicator examines public subsidies to households for student living costs and for educational expenses.

Through subsidies to students and their families, governments can encourage increased participation in education by covering part of the costs of education and related expenses. Furthermore, public subsidies play an important role in indirectly financing educational institutions. Channelling funding for institutions through students may help to increase competition among institutions and result in greater efficiency in the financing of education. Since aid for student living costs can also serve as a substitute for work as a financial resource, public subsidies may enhance educational attainment by enabling students to study full-time and to work fewer hours or not at all.

Public subsidies come in many forms, as means-based subsidies (*e.g.*, grants and other forms of direct financial aid allocated according to parents' or students' income and wealth), as aid for specific needs (*e.g.*, implicit subsidies to provide transportation, housing or meal services at reduced prices), as family allowances for all students, as tax allowances for students or their parents, or as other household transfers. These subsidies can be seen as various forms of incentives though unconditional subsidies such as tax reductions or family allowances may provide less of an incentive for low-income students than means-tested subsidies. However, they may help to reduce disparities between households with and without children in education.

A key question is whether financial subsidies for households should be provided in the form of grants or loans. Do loans help to increase the effectiveness of financial resources invested in education and shift some of the cost of education to the beneficiaries of educational investment? Or are student loans less effective than grants in encouraging low-income students to pursue their education?

Although this indicator examines public subsidies across all levels of education, it focuses largely on the tertiary level, where these subsidies are most prevalent.

Most countries offer public subsidies to households from upper secondary education onwards. There are usually few subsidies available before the upper secondary level, since in most countries education up to that level is compulsory and provided free of charge. This indicator presents a general overview of the distribution of direct expenditure on institutions and public subsidies across all levels of education, from early childhood up to the end of tertiary education. However, the focus is on tertiary education, with a detailed picture of how subsidies are provided to households, based on a special survey on public subsidies conducted in 1999.

EVIDENCE AND EXPLANATIONS

Public subsidies as a proportion of total public expenditure on education

On average, 7.4 per cent of public expenditure on all levels of education is accounted for by public subsidies to households and other private entities.

OECD countries spend an average of 0.4 per cent of their GDP on public subsidies to households and other private entities. In Denmark and New Zealand this figure is more than 1 per cent of GDP (see Indicator B1). Furthermore, on average across OECD countries, 7.4 per cent of the public budgets for education is spent on transfers to the private sector. Almost all countries spend over 50 per cent of the total amount of public subsidies at the tertiary level. Exceptions to this pattern are the Czech Republic, Denmark, France, Germany, Poland, Portugal and Switzerland.

At the primary and secondary level, public subsidies account for an average of about 4.6 per cent of the total public spending. The proportion spent on subsidies at these levels ranges from less than 1 per cent in Austria, the Flemish Community of Belgium, Hungary, Italy, Poland, Spain and the United Kingdom, to more than 8 per cent in Australia, Denmark, the Netherlands and Sweden (see Table B3.1*a*).

Six out of 25 countries spend a third or more of their public education budget at the tertiary level on subsidies to the private sector.

The proportion of educational budgets spent on subsidies to households and private entities is much higher at the tertiary level. On average, OECD countries spend 21 per cent of their public budget for tertiary education on subsidies to households and other private entities (see Chart B3.1). Governments that spend large amounts on educational institutions also typically provide high levels of subsidies. Canada, Denmark, New Zealand, Norway and the United Kingdom spend over a third of their budgets on public subsidies. In Luxembourg, subsidies account for over half of direct expenditure on tertiary education. This is partially because direct expenditure on institutions is small in Luxembourg. Students can study in Luxembourg only at the non-university level or for just the first year at university level. All subsequent years of study, for which subsidies are provided as well, have to be spent abroad as there are no institutions in Luxembourg at this level. The proportion spent on subsidies, not including tax reductions, is less than 5 per cent in Poland, Portugal and Switzerland.

The average public subsidies per tertiary student not attributable to educational institutions (across all students, including those not receiving subsidies) range from below US$400 (PPP converted) in France, Hungary, Poland, Portugal and Spain, to more than US$4 000 in Denmark and Sweden (see Chart B3.4). The actual amount spent on a student who is entitled to receive subsidies may be much higher.

Mechanisms for providing public subsidies to households at the tertiary level

At the tertiary level the bulk of all subsidies is provided in the form of scholarships and loans to students.

Many different funding strategies are used in the various countries to target subsidies to tertiary students and their families (see Chart B3.2). Countries often combine different types of subsidies. However, scholarships and loans account for more than three-quarters of all subsidies in all reporting countries, with the exception of the Czech Republic, France, Germany and Switzerland.

Countries use different mixtures of grants and loans to subsidise students' educational costs.

A key question in many countries is whether financial subsidies for households should primarily be provided in the form of grants or loans. Governments choose to subsidise students' educational costs through different mixtures of grants and loans. Advocates of student loans argue that money spent on loans goes further, that is, if the amount spent on grants were used to guarantee or subsidise loans instead, more aid would be available to students in total and overall access would be increased. Loans also shift some of the cost of education to those who benefit most from educational investment. Opponents of loans argue that student loans will be less effective than grants in encouraging low-income students to pursue their education. They also argue that loans may be less efficient than anticipated because of the various subsidies provided to borrowers or lenders, and of the costs of administration and servicing.

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Chart B3.2. **Types of public subsidies available for tertiary education (1997)**

This chart presents the types of public subsidies that exist in countries. Some types shown here may be excluded from other charts because quantitative data on their magnitude are lacking.

● These kinds of subsidies do exist
■ These kinds of subsidies do not exist

	Australia	Canada	Czech Republic	Denmark	Finland	France	Germany	Ireland	Italy	Netherlands	Norway	New Zealand	Poland	Sweden	Switzerland	United Kingdom
Scholarships and similar grants																
Scholarships and similar grants (fellowships, awards, bourses) earmarked for tuition fees	●	■	■	■	■	●	■	●	●	■	■	■	●	■	■	●
Scholarships and similar grants (fellowships, awards, bourses) for general purposes	●	●	■	●	●	●	●	●	●	●	●	●	●	●	●	●
Specific subsidies in cash or kind																
Housing	■	●	■	■	●	■	●	■	●	■	●	●	■	■	■	●
Specific subsidies for transportation	■	■	■	■	●	■	●	■	■	●	●	●	■	■	■	●
Specific subsidies for medical expenses	■	■	●	■	■	■	●	■	■	■	●	●	■	■	●	●
Specific subsidies for books and supplies	■	■	■	■	■	■	●	■	■	■	●	●	■	■	■	■
Specific subsidies for social and recreational purposes	■	■	■	■	■	■	●	■	■	■	●	●	■	■	■	■
Other specific subsidies	■	■	■	■	●	■	●	■	●	■	●	●	■	■	■	■
Specific subsidies for study abroad, including fees to be paid abroad	■	■	■	■	●	■	●	■	●	■	●	●	■	●	●	■
Family allowances or child allowances that are contingent on student status	■	■	●	■	■	●	●	●	■	■	■	■	■	■	●	●
Public loans																
Public student loans that cover tuition fees only	●	■	■	■	■	■	■	■	■	■	■	●	■	■	■	■
Public student loans for general purposes	■	●	■	●	■	■	●	■	●	●	●	●	■	●	●	●
Government subsidies or government guaranties for student loans provided by private financial institutions	●	●	■	■	●	■	●	■	●	■	■	■	■	■	●	■
Tax reductions, tax credits	●	●	●	■	●	●	●	■	●	■	■	■	●	■	●	■

Source: OECD.

Chart B3.3 presents the proportion of all public subsidies to households in the form of loans and grants/scholarships. Grants/scholarships include family allowances and other specific subsidies, but exclude tax reductions. Twelve OECD countries provide only grants or scholarships to students. The rest of the countries provide both grants/scholarships and loans to students.

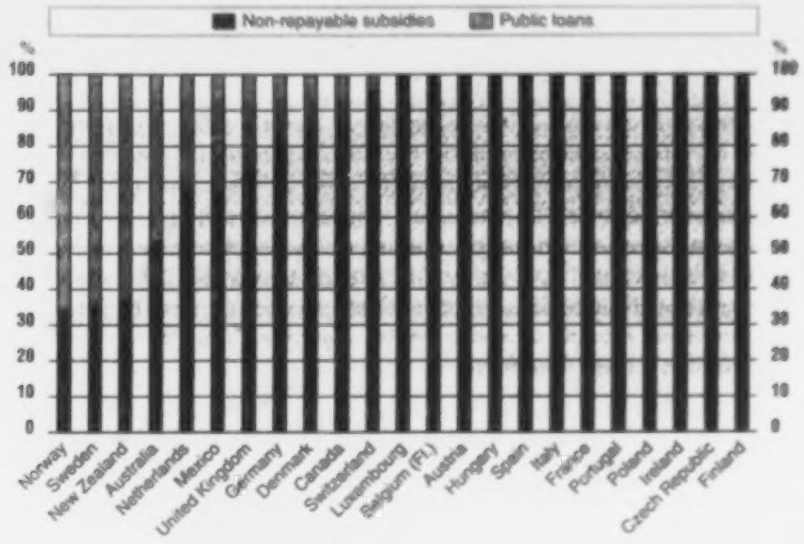
Private loans are further components of financial aid to students in Australia, Canada, Finland, Germany and the US.

It is also common for governments to guarantee the repayment of loans to students made by private lenders. In some countries, this indirect form of subsidy is as significant as, or more significant than, direct financial aid to students. The OECD indicators only take into account public transfers to private entities relating to private loans, not the total value of loans generated.

In the United States, the value of private loans for students is almost as high as the total value of public subsidies to households and other private entities, and in Canada private loans guaranteed by government account for half of the total cost of public subsidies.

Other countries guaranteeing or subsidising private loans to students are Finland and Germany. Germany has just introduced guaranteed loans for students who are no longer eligible for public aid because they have exceeded the subsidised duration of studies.

Chart B3.3. **Public loans and non-repayable subsidies as a percentage of all public subsidies to households at the tertiary level of education (1997)**



Countries are ranked by ascending order of the proportion of non-repayable subsidies.
Source: OECD.

Non-repayable subsidies include not only scholarships and similar grants, but also specific subsidies in cash or kind and family and child allowances that are contingent on student status.
The percentage of loans is based on the gross amount of loans, not taking repayments into account.
Tax reductions are excluded from this chart.

Repayment of public loans can be a substantial source of income for governments and can decrease the costs of loan programmes. The current reporting of household expenditure on education (Indicator B2) does not take into account the repayment by previous recipients of public loans. These repayments can be a substantial burden to individuals and have an impact on the decision to participate in tertiary education. However, many countries make the repayment of loans dependent on the later income of students. Finland subsidises interest payments for former students who are unemployed, and the United States forgives loans for those who enter certain occupations or work in certain localities. Most countries forgive loan balances at death.

Repayment of loans reduces the real costs of loan programmes for the public budget: at the same time it increases the burden on households for education.

Given that repayments to loan programmes are made by former students who took out loans several years previously, it is difficult to estimate the real costs of loan programmes, net of repayments. International comparisons of total repayments and loans in the same reference period cannot be made, since they are heavily influenced by changes in schemes for the distribution of loans and by changes in the numbers of students receiving loans. However, in those countries for which data are available, it can be shown that the repayments received in the reference year represent a substantial proportion of the loans given out in the same period. Figures from an OECD special survey conducted in 1999 indicate that repayments received in 1997 accounted for over 40 per cent in Australia and the Netherlands, and for about 10 per cent in the United Kingdom. In Germany, repayments collected in 1997 seem to be even higher but are influenced by a change in legislation, since today's grants were in previous years given as loans. Repayments correspond to 30 per cent of the total value of loans, scholarships and other grants made in Germany in 1997.

Specific subsidies for transportation, medical expenses, housing, meals, books and supplies, etc., form part of public subsidies in several OECD countries.

Students in ten out of the 16 reporting countries receive some kind of subsidy for specific purposes. In the Czech Republic, Finland and the Netherlands, such subsidies account for over 20 per cent of all subsidies provided (see Chart B3.2). The most common subsidies, provided by all reporting countries, are for transportation. In the Czech Republic subsidies for transportation exceed 15 per cent of all subsidies provided for tertiary education. Other specific subsidies are for medical services or health insurance (the Czech Republic, Ireland and the United Kingdom) and housing, (Finland, France and the United Kingdom).

Data on specific subsidies, especially those given in kind rather than in cash, are not available for many countries. In Ireland, New Zealand, Norway and Switzerland specific subsidies exist, but can not be quantified. They are excluded from the total value of subsidies reported in Chart B3.1.

Family and child allowances contingent on student status, and tax reductions are other important forms of subsidy.

Family and child allowances that are contingent on student status, and tax reductions are other important forms of public subsidy. Whereas most scholarships and grants are means-tested or targeted in some other way, in many cases tax reductions and family allowances provided to students do not take into account the needs and income of the students or their families. This means that middle and high-income families can benefit even more from tax reductions than low-income families. Research shows that channelling money for education to families through tax reductions (as opposed to providing subsidies through means-tested grants or loans) has little effect on participation in education. However, the provision of tax reductions and family allowances contingent on student status is, in many countries, motivated by factors other than education policy.

The Czech Republic, France and Germany differ from other OECD countries in the way they provide subsidies for education.

Whereas in other OECD countries, scholarships, grants and loans form the bulk of all subsidies, the Czech Republic and France provide subsidies mainly via tax reductions and family allowances (see Chart B3.2). Direct loans and grants are not provided in the Czech Republic, although institutions give scholarships to students. In the Czech Republic and Germany, more than a fifth of all subsidies or 4 per cent of total expenditure on tertiary education are transferred to households as family allowances. In Germany, family allowances are independent of family income. Family allowances in the Czech Republic, where they represent over 20 per cent of the total value of subsidies, are dependent on family income.

Tax reductions in the Czech Republic and France account for over 50 per cent of the total. Tax reductions are also part of the subsidy system in Australia, Canada, Finland, Germany, Italy, Poland and Switzerland (Chart B3.2). In some countries, repayments of loans by previous students are subject to tax reductions.

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Tax reductions are negligible in Denmark, Ireland, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom.

The use of public subsidies: student living costs and tuition fees

In most countries, decisions on how to spend public subsidies to households for education are determined by the beneficiaries.

In most countries, the bulk of public payments to households for education are not earmarked, that is, their use is determined by the beneficiaries, the students and their families. In a few countries, however, public subsidies are earmarked for payments to educational institutions. Australia, Ireland, New Zealand and the United Kingdom, for example, earmark public subsidies for tuition fees. In Australia, loans and tuition fees are closely related in the Higher Education Contribution Scheme (HECS). Under HECS, students can elect to pay their contributions for their university education in advance, semester by semester, and receive a 25 per cent discount, or, they can repay their accumulated contribution through the tax system when their annual income exceeds a minimum threshold. For the purpose of the OECD education indicators, HECS is counted as a loan scheme, although students may not see the delayed payments as a loan. In countries where tuition fees are substantial, a proportion of the public subsidy to households is effectively earmarked for payments to educational institutions, even without an official policy.

In all reporting countries subsidies are spent mainly outside educational institutions.

Countries estimate that the bulk of public subsidies are spent outside educational institutions. These subsidies mainly support student living costs and educational expenses other than tuition fees. Public subsidies for student living costs and other educational costs outside institutions range from an annual equivalent of just over US$100 in Poland up to US$1 500 or more in Finland, Ireland, the Netherlands and the United Kingdom per tertiary student, including those who do not receive any subsidies. In Denmark and Sweden subsidies per student for living costs exceed US$4 500 (see Chart B3.4).

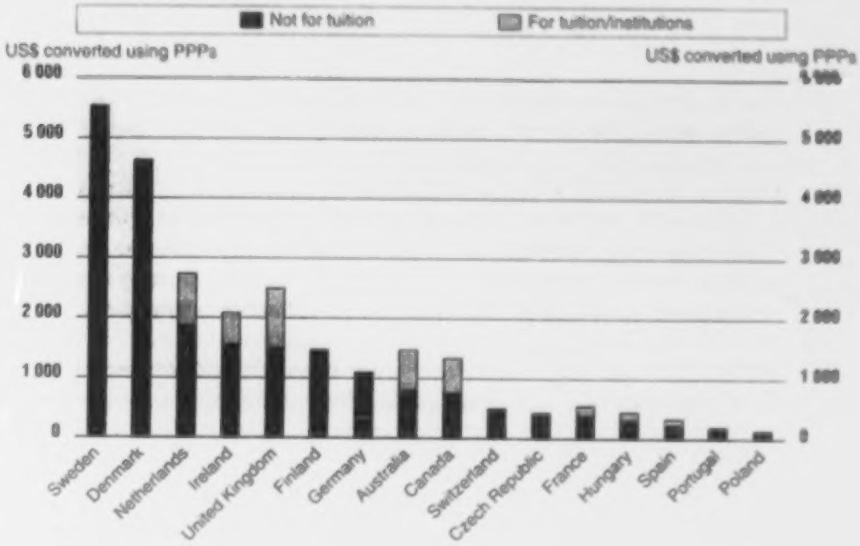
Subsidies are particularly important in systems where students are expected to pay at least a proportion of the cost of their education.

In countries where students are obliged to pay fees to educational institutions, financial aid to students is a significant help in paying for tuition fees. Between 40 per cent of all subsidies in Australia, Canada and the United Kingdom, and 25 per cent in Ireland, are spent on tuition and other fees at educational institutions. In the Czech Republic and Denmark only a minority of students are enrolled in institutions that charge fees. The exception is Korea, where households pay around 60 per cent of the cost of attending tertiary institutions, since no public subsidies for tuition fees are provided.

The proportion of public subsidies spent on fees for educational institutions covers a substantial amount of all initial household payments to educational institutions. Chart B3.5 presents the percentages of expenditure on tertiary institutions paid by students and households; it excludes payments by other private entities, which are included in Indicator B2. Public subsides to households range from 20 per cent of all household expenditure on institutions in France, to 75 per cent in the Netherlands. It should be noted that part of the remaining costs for households might be covered by subsidies from other private entities or by private loans. In the United Kingdom all tuition fees paid by households were covered by public subsidies in 1996/97. However, new student support arrangements came into effect in 1998/99. New entrants to tertiary education are now expected to contribute towards the cost of their tuition on their own. The amount available to students through loans was increased to compensate for a reduction in the level of grants.

Chart B3.4. **Average public subsidies to households per student at the tertiary level of education (US$ converted using PPPs) (1997)**

This chart shows the average public subsidies per tertiary student across all students, including those not receiving subsidies. The actual amount received by those students who are entitled to receive subsidies may be much higher.

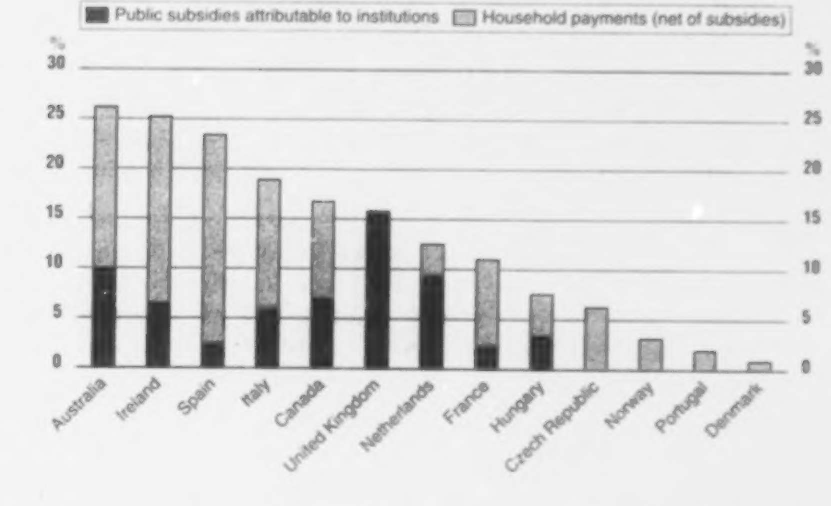


Countries are ranked in descending order of annual subsidies not attributable for payments to educational institutions.

Source: OECD.

Chart B3.5. **Household payments to educational institutions and public subsidies as a percentage of all expenditure on educational institutions at the tertiary level of education (1997)**

This chart shows the total amount of household expenditure on educational institutions. The blue bar shows the proportion of household expenditure on institutions that is covered by public subsidies to households. The grey bar shows the net expenditure originating in households.



Note: Chart B3.5 does not include payments by other private entities and public subsidies to other private entities. It differs therefore from Chart B2.1.

Countries are ranked in descending order of the percentage of household expenditure on institutions plus public subsidies attributable to institutions.

Source: OECD.

Criteria for receiving public subsidies

Another aspect in which countries differ pertains to the criteria by which students become eligible for public subsidies (see Table B3.3).

In the majority of the countries included in this indicator, eligibility for receiving subsidies and the amount awarded are contingent on the student's family or household income. This shows that scholarships and grants in most countries are intended to overcome social disparities and to widen access to tertiary education for students from low-income families.

Scholarships and grants in most countries are intended to support students from low-income families.

Evidence of progress in studies is a condition for retaining scholarships/grants and loans in the majority of OECD countries (see Table B3.3). For example, Denmark has encouraged students to progress more rapidly through its "taximeter" funding mechanism. Two features of the "taximeter" provide added incentive for progress towards a degree: 1) eligibility for payment of living expenses is limited to twelve semesters of enrolment; and 2) institutions receive appropriations on the basis of the number of "passes" in examinations. Similar performance criteria are applied in Finland and Sweden, where part of the public funding provided to institutions is based on the number of completed degrees (especially advanced degrees).

Evidence of progress in studies is another important criterion for eligibility in many countries.

In other countries, such as Australia and Germany, the number of years for which public subsidies are available is limited, depending on the theoretical duration of studies. Finally, there remain a number of countries (Australia, the Czech Republic, Mexico and the United Kingdom) in which public subsidies are not linked to student progress.

In a few OECD countries, the age of the student is another criterion for determining eligibility for subsidy. In the Czech Republic, Germany, the Netherlands and Sweden students above a certain age are not eligible for scholarships and grants. The age limits range from 26 in the Czech Republic to 45 in Sweden. In France, students must be below 26 years old when applying for the first time for a scholarship. However, the majority of countries do not take age into account as a criterion for eligibility.

Age is a criterion for eligibility in a minority of countries.

■ DEFINITIONS

In the OECD survey on public subsidies, countries provided information on public education subsidies to households for each level of education. The following categories of public subsidies were included: *i)* grants/scholarships; *ii)* public student loans; *iii)* family or child allowances contingent on student status; *iv)* public subsidies in cash or kind specifically for housing, transportation, medical expenses, books and supplies, social, recreational and other purposes; *v)* interest-related subsidies for private loans; vi) private student loans guaranteed by government; and *vii)* tax reductions. The survey also collected descriptive information on the types of funding systems in the different countries.

Data refer to the financial year 1997 and are based on the UOE data collection on education statistics administered in 1999 (for details see Annex 3).

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Data on tax reductions and subsidies at the tertiary level by category of subsidy are based on a special survey carried out among OECD *Member countries in* 1999.

Public subsidies reported in this indicator have been included in Indicator B1. Tax reductions contingent upon student status are excluded from other indicators. Values in Indicator B1 may therefore be smaller than in this indicator. Data obtained by the special survey on public subsidies are fully comparable with the data reported in the UOE Data Collection. Data from the two surveys can therefore be reported together. Total public expenditure on education, used as basis for Tables B3.1*a*, B3.1*b* and B3.2, excludes tax reductions. Therefore, for countries that report tax reductions, the sum of all categories of subsidy plus direct expenditure on educational institutions exceeds 100 per cent.

Subsidies include the value of special subsidies provided to students, either in cash or in kind. Expenditure on student loans has been reported on a gross basis – that is, without subtracting or netting out repayments or interest payments from the borrowers (students or households). This is because the gross amount of loans including scholarships and grants is the relevant variable for measuring financial aid to current participants in education.

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Table B3.1a. **Direct expenditure for institutions and transfers to the private sector as a percentage of total government expenditure on primary, secondary and post-secondary non-tertiary education (1997)**

	Direct expenditure for institutions	Transfer for education to private entities				
		Financial aid to students			Transfer and payments to other private entities	Total
		Scholarships/other grants to households	Student loans	Total		
Australia	91	8	n	8	1	9
Austria	99	n	a	n	n	1
Belgium (Fl.)	100	n	a	n	n	n
Canada	m	m	m	m	m	m
Czech Republic	94	6	a	6	n	6
Denmark	87	13	n	13	n	13
Finland	95	5	n	5	m	5
France	96	4	a	4	a	4
Germany	95	5	n	5	n	5
Greece	m	m	m	m	a	m
Hungary	99	1	a	1	n	1
Iceland	99	m	1	1	m	1
Ireland	95	5	n	5	n	5
Italy	99	1	a	1	n	1
Japan	m	m	m	m	n	m
Korea	100	a	a	a	a	a
Luxembourg	m	m	m	m	m	m
Mexico	99	1	a	1	n	1
Netherlands	91	8	n	8	1	9
New Zealand	93	3	3	7	a	7
Norway	95	3	2	5	x	5
Poland	100	n	a	n	n	n
Portugal	99	1	a	1	a	1
Spain	99	1	n	1	n	1
Sweden	84	12	4	16	a	16
Switzerland	97	2	n	2	1	3
Turkey	m	m	m	m	m	m
United Kingdom	99	1	a	1	n	1
United States	m	m	m	m	m	m
Country mean	**96**	**4**	**n**	**4**	**n**	**4**

Source: OECD Education Database. See Annex 3 for notes.

Table B3.1*b* **Direct expenditure for institutions and transfers to the private sector as a percentage of total government expenditure on tertiary education (1997)**

	Direct expenditure for institutions	Transfer for education to private entities							
		Financial aid to students							
		Scholarships	Student loans	Family and child allowances contingent to the student status	Specific subsidies	Total	of which attributable for educational institutions	Transfer and payments to other private entities	Total
Australia	73	15	12	n	n	26	12	1	27
Austria	84	x	n	x	x	13	x	2	16
Belgium (Fl.)	76	24	a	n	n	24	24	n	24
Canada	65	15	3	n	n	18	8	17	35
Czech Republic	91	n	a	4	5	9	n	n	9
Denmark	64	30	6	a	a	36	n	n	36
Finland	82	13	n	n	4	17	n	1	18
France	92	8	a	m	n	8	2	a	8
Germany[1]	88	4	2	4	1	11	n	n	12
Greece	m	m	m	m	m	m	m	a	m
Hungary	87	x	a	x	x	13	4	n	13
Iceland	73	x	27	x	x	27	x	m	27
Ireland	73	26	n	1	m	27	7	n	27
Italy	87	11	n	n	2	13	7	n	13
Japan	m	a	m	a	m	m	m	n	m
Korea	m	m	m	m	m	m	m	m	m
Luxembourg	48	x	a	x	x	52	a	a	52
Mexico	92	x	2	x	x	8	x	n	8
Netherlands	74	12	8	n	5	25	8	n	26
New Zealand	57	16	27	n	m	43	x	a	43
Norway	64	12	24	n	m	36	n	n	36
Poland	96	4	a	a	n	4	a	m	4
Portugal	96	x	a	x	x	4	a	a	4
Spain	90	x	n	x	x	10	3	n	10
Sweden	72	10	18	n	n	28	n	n	28
Switzerland	96	3	n	n	m	3	n	1	4
Turkey	m	x	m	x	x	m	m	m	m
United Kingdom	65	25	9	1	n	35	14	n	35
United States[2]	84	x	x	x	x	16	x	m	16
Country mean	**79**	**13**	**6**	**1**	**1**	**20**	**4**	**1**	**21**

[1] Breakdown of financial aid to students based on data for 1996.

[2] Including post-secondary non-tertiary data.

Source: OECD Education Database, special survey conducted by OECD, 1999. See Annex 3 for notes.

Table B3.2 **Public subsidies to households per student at the tertiary level of education (1997)**

US$ converted using PPPs

	Public subsidies per student				Tax reductions and tax credits		
	Attributable for educational institutions	For student living costs, educational expenditure outside educational institutions	Total	*of which* loans	As % of total public expenditure for education	As % of GDP	Per student (US$ PPP converted)
Australia[1]	675	803	1 478	672	m	m	m
Austria	x	x	1 526	n	m	m	m
Belgium (Fl.)	m	m	m	m	m	m	m
Canada[1]	570	773	1 345	201	3.1	0.1	232
Czech Republic	n	419	419	a	9.2	0.1	442
Denmark[1]	n	4 629	4 629	736	a	a	a
Finland	n	1 464	1 464	n	m	m	m
France	165	388	553	a	12.1	0.1	798
Germany[2]	n	1 090	1 090	239	3.2	n	305
Greece	m	m	m	m	m	m	m
Hungary	140	304	444	a	m	m	m
Iceland	x	x	2 057	2 057	m	m	m
Ireland[1]	515	1 564	2 080	n	n	n	n
Italy	m	m	m	m	m	m	m
Japan	m	m	m	m	m	m	m
Korea	n	n	n	n	m	m	m
Luxembourg	a	a	6 809	a	m	m	m
Mexico	x	x	276	90	m	m	m
Netherlands	862	1 877	2 739	899	n	n	n
New Zealand	x	x	2 109	2 086	n	n	n
Norway[1]	x	x	4 737	3 132	n	n	n
Poland	a	130	130	a	m	m	m
Portugal	a	187	187	a	m	m	m
Spain	108	234	341	n	m	m	m
Sweden[1]	n	5 535	5 535	3 564	a	a	a
Switzerland[1]	x	x	500	24	1.6	n	228
Turkey	m	m	m	m	m	m	m
United Kingdom[1]	992	1 514	2 505	633	a	a	a
United States	x	x	1599	x	m	m	m
Country mean	**237**	**1 230**	**1 856**	**651**	**2.4**	**n**	**167**

1. Source for students: Public subsidies survey.
2. Data for 1996.

Source: OECD Education Database, special survey conducted by OECD, 1999. See Annex 3 for notes.

Table B3.3 **Background information on eligibility requirements for scholarships and grants at the tertiary level of education (1997)**

	Age limits	Scholarships/grants related to progress	Eligibility dependent on: Student's income	Parents' income	Partner's income	Notes
Australia	No age limit	N	Y	Y	Y	The number of years for which public subsidies are available is limited, dependent on the theoretical duration of studies.
Austria		Y	Y	Y	Y	
Belgium (Fl.)	No age limit	Y	Y	Y	Y	
Canada	No age limit	Y	Y	Y	Y	
Czech Republic	26	N	Y	Y	Y	The responses refer to child allowances. Only a few scholarships are related to progress. Dependent on the student's marital status either the partner's income or the parent's income is of relevance.
Denmark	No age limit	Y	Y	Y	N	
Finland	No age limit	Y	Y	N	N	If a person receives unemployment benefits, a pension, a child allowance or certain other benefits he/she is not entitled to a study grant. For students who live at home or are under a certain age (18 to 20 years) the grant can be dependent on the parent's income.
France	See note	Y	Y	Y	Y	Students have to be under 26 years old when they apply the first time for scholarships; "allocations familiales" are given for students aged 18 to 20 contingent on the student status but independent from study progress.
Germany	30	Y	Y	Y	Y	The number of years for which public subsidies are available is limited, dependent on the theoretical duration of studies.
Greece		Y	N	Y	N	
Ireland	No age limit	Y	Y	Y	Y	Candidates must be an EU national and resident in Ireland one year prior to commencing course.
Italy	No age limit	Y	Y	Y	Y	Eligibility can be dependent on the number of children in a family. Handicapped with more than 66% of disability are eligible to scholarships. Students who receive a grant are exempt from tuition fees, as are students who qualify for scholarships but do not obtain a scholarship due to limitations in the availability of grants.
Mexico	No age limit	N	Y	N	N	
Netherlands	27	Y	N	Y/N	N	Part of the scholarship is dependent on parental income.
New Zealand	No age limit	Y	Y	Y	Y	Allowances are dependent on the income of parents if the student is under 25 years of age and single. There is also an "independent circumstances allowance" where parents' income is not considered, if the student is over 25 or married.
Norway	No age limit	Y	Y	N	N	
Poland	m	Y/N	Y	Y	Y	
Spain		Y	Y	Y	Y	
Sweden	45	Y	Y	N	N	
Switzerland	See note	Y	Y	Y	Y	Age limits depend on the regulations at Kanton-level. Eligibility mainly dependent on parental income and can be dependent on the number of children in a family.
United Kingdom	No age limit	Y/N	Y	Y	Y	Eligibility mainly dependent on parental income. Students aged over 25 have their own income taken into account.
United States	No age limit	Y	Y	Y	Y	

Y = yes; N = no.
Source: Special survey conducted by OECD, 1997 and 1999. See Annex 3 for notes.

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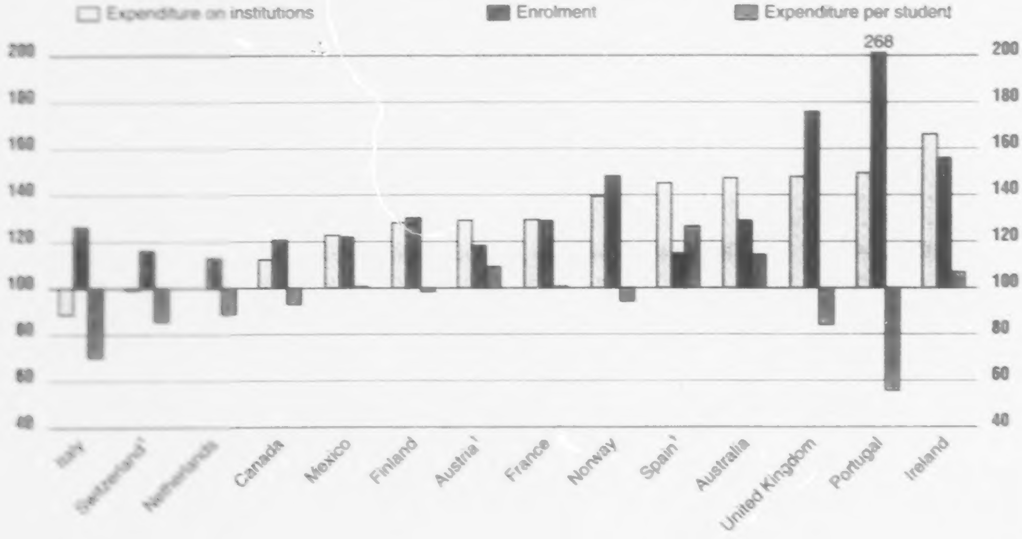
EDUCATIONAL EXPENDITURE PER STUDENT

- Educational expenditure per student at the primary and secondary levels increased in most countries between 1990 and 1996, even though enrolment increased in many of them at the same time.
- At the tertiary level, expenditure per student decreased in eight out of 14 countries, largely as a result of large increases in enrolment.
- There is a positive relationship between spending per student and per capita GDP, poorer countries spending relatively less per student than richer countries.
- In some countries, low annual expenditure translate into high overall costs of tertiary education because of the long duration of the tertiary programme.

Chart B4.1. **Index of changes in spending on education, enrolment, and expenditure per student for tertiary education between 1990 and 1996 (1990 = 100)**



1. Public institutions only.

Countries are ranked in ascending order of total expenditure on institutions.

Source: OECD Education Database.

POLICY CONTEXT

This indicator shows annual expenditure per student in absolute terms (in equivalent US dollars).

Effective schools require the right combination of talented personnel, adequate facilities, state-of-the-art equipment and motivated students ready to learn. The demand for high-quality education, which can translate into higher costs per student, has to be balanced against the necessity of avoiding undue burdens on taxpayers.

As a result, the question of whether the resources devoted to education yield adequate value for the investments made figures prominently in the public debate. Even small gains in efficiency, of the order of 1 or 2 per cent, could release prodigious resources that could be used to improve educational quality or to increase access to education. Although the optimal volume of resources required to prepare each student for life and work in the modern economy is difficult to assess, international comparisons of spending per student can provide a starting point for evaluating the effectiveness of different models of educational provision.

It also compares expenditure per student relative to GDP per capita.

Policy-makers must also balance the importance of improving the quality of educational services with the desirability of expanding access to educational opportunities. A comparative review of how trends in expenditure per student have evolved shows how the expansion of enrolments in many countries, particularly in tertiary education, has affected the allocation of resources per student.

Trends in the development of expenditure per student are also examined.

Decisions on the allocation of funds to the various levels of education are also important. For example, some countries emphasise broad access to higher education while others invest in near-universal education for children as young as two or three years of age.

EVIDENCE AND EXPLANATIONS

Expenditure per student in equivalent US dollars

As a whole, OECD countries spend US$3 769 per primary student, US$5 507 per secondary student and US$10 893 per tertiary student...

OECD countries as a whole spend US$3 769 per student at the primary level, US$5 507 per student at the secondary level, and US$10 893 per student at the tertiary level (Chart B4.2). But these overall OECD-averages are heavily influenced by high expenditure in some countries such as the United States. Spending per student in the "typical" OECD country, as represented by the simple mean across all countries, amounts to US$3 851 at the primary level, US$5 273 at the secondary level and US$8 612 at the tertiary level of education.

... but these averages mask a broad range of expenditure per student across countries.

These averages mask a broad range of expenditure per student across OECD countries: from US$935 in Mexico to US$6 596 in Denmark at the primary level, from US$1 726 in Mexico to US$9 045 in Switzerland at the secondary level, and from less than US$3 000 in Turkey to more than US$17 000 in the United States at the tertiary level.

These comparisons are based on purchasing power parities, not market exchange rates, and therefore reflect the amount of a national currency that will buy the same basket of goods and services in a given country as the US dollar in the United States. These adjustments do not allow for differences in the cost of educational resources of equivalent quality.

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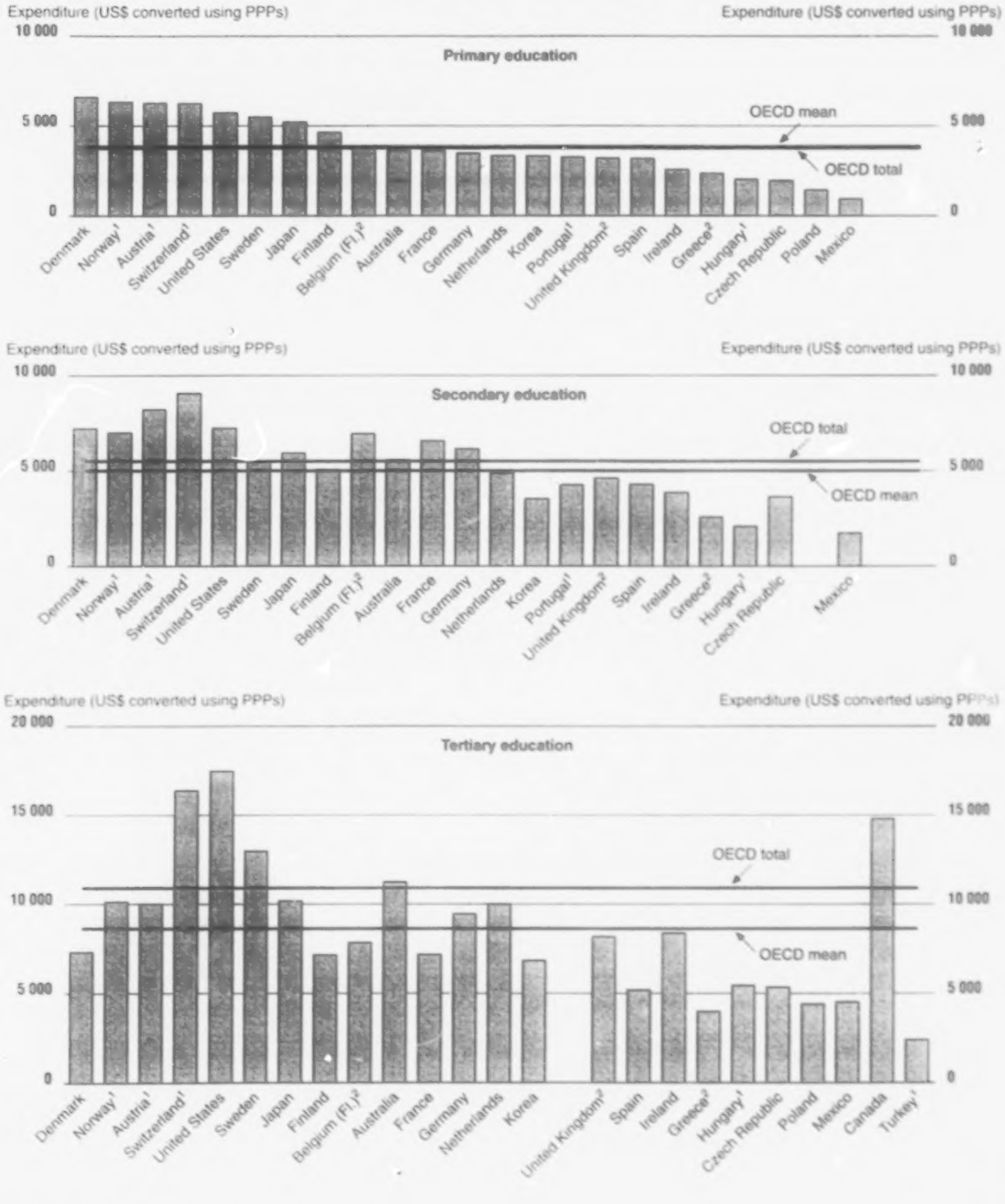
Chart B4.2. **Annual expenditure per student in public and private institutions, by level of education (1997)**



1. Public institutions.
2. Public and government-dependent private institutions.

Countries are ranked in descending order of expenditure per student at the primary level of education.

Source: OECD.

Of the 23 OECD countries for which data on expenditure per primary student are available, five spend less than US$2 500 per primary student (the Czech Republic, Greece, Hungary, Mexico and Poland) and five spend more than US$5 500 (Austria, Denmark, Norway, Switzerland and the United States).

For secondary education, Greece, Hungary and Mexico spend less than US$2 600 per student, whereas Austria, Denmark, Switzerland and the United States spend more than US$7 000 (Table B4.1).

Expenditure per tertiary student varies between countries by a factor of seven.

At the tertiary level, expenditure per student varies by a factor of seven, with Turkey and the United States constituting the extremes among the 24 countries for which data are available (Table B4.1). Greece, Mexico, Poland and Turkey report annual expenditure of less than US$5 000. Canada, Switzerland and the United States report spending over US$14 000 per student.

Expenditure per student consistently rises sharply with the level of education and is dominated by personnel costs.

Expenditure per student exhibits a common pattern throughout the OECD: in each country it rises sharply with the level of education, and it is dominated by personnel costs (Indicator B5). This pattern can be understood by looking at the main determinants of expenditure, particularly the place and mode of educational provision. The vast majority of education still takes place in traditional school and university settings with – despite some differences – similar organisation, curriculum, teaching style and management. These shared features are likely to lead to similar patterns of unit expenditure.

The labour-intensiveness of education accounts for the predominance of teachers' salaries in overall costs.

The labour-intensiveness of the traditional model of education accounts for the predominance of teachers' salaries in overall costs. Differences in student/teaching staff ratios (Indicator B7), staffing patterns, teachers' salaries (Indicator D1), teaching materials and facilities influence cost differences between levels of education, types of programmes and types of schools.

Technology may allow some savings to be made.

Future gains in efficiency may be achieved through the use of new information technologies, both to hold down unit costs and to maintain, if not improve, learning outcomes. Unit cost savings may also be available through the expansion of distance education, whether intensive use is made of technology or not.

Lower unit expenditure cannot simply be equated with lower quality of educational services.

It would be misleading to equate lower unit expenditure generally with a lower quality of educational services. The Czech Republic, Japan, Korea and the Netherlands, for example, which have comparatively moderate expenditure per student, are the countries with some of the best performances by students in mathematics.

Institutional arrangements often lag behind changes in demographic conditions.

Institutional arrangements often adapt to changing demographic conditions only after a considerable lag. They can also influence unit expenditure. For example, a declining number of primary students may lead to higher unit costs if staffing is not reduced and/or schools are not closed in proportion. Conversely, in times of increasing enrolment, class sizes may rise, teachers may teach outside their field of specialisation, etc.

In addition, differences in national price levels for educational services, in so far as they deviate from overall price levels, accounted for in the purchasing power parities, have an impact on the differences in unit expenditure between countries.

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Changes in expenditure per student between 1990 and 1996

Educational expenditure per student increased between 1990 and 1996 in most countries.

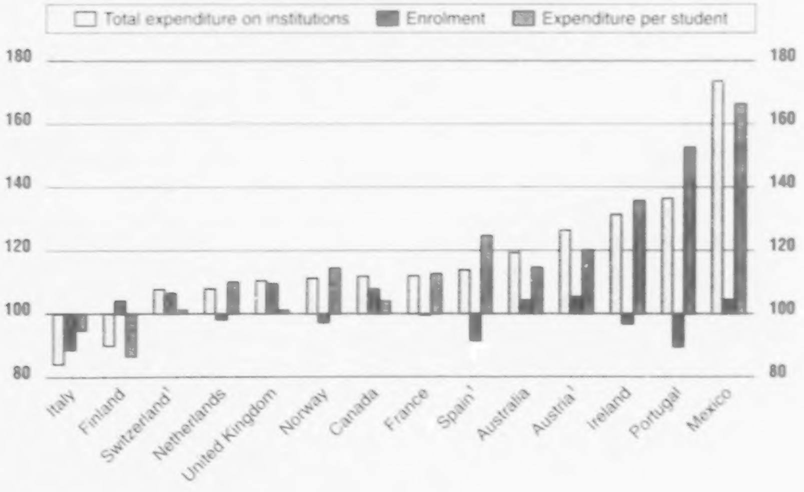
In 12 out of the 14 countries for which comparable trend data are available for primary and secondary education, expenditure per student increased between 1990 and 1996, even though enrolment increased in many of them at the same time (Chart B4.3). In Ireland, Mexico, Portugal and Spain expenditure per primary and secondary student rose by between 25 and 66 per cent.

Only in Finland and Italy did expenditure per primary and secondary student decrease between 1990 and 1996. In Italy this fall occurred despite a simultaneous decrease in enrolments.

Tertiary education presents a mixed picture of countries' ability to keep pace with a marked increase in access.

In eight out of 14 OECD countries, tertiary expenditure per student declined between 1990 and 1996, largely as a result of a dramatic increase in the number of students enrolled: in Canada, Finland, Italy, the Netherlands, Norway, Portugal, Switzerland and the United Kingdom, expenditure per tertiary student in 1996 was lower than in 1990 while enrolment was up (Chart B4.1). By contrast, expenditure on tertiary education in Spain increased much faster than enrolments, leading to increases in expenditure per tertiary student of 26.5 per cent. Australia and Austria also experienced increases in their tertiary expenditure even as enrolments increased.

Chart B4.3. **Index of changes in spending on education, enrolment and expenditure per student for primary and secondary education between 1990 and 1996 (1990 = 100)**



In half the countries where primary and secondary enrolment went up, per student expenditure also increased.

1. Public institutions only.

Countries are ranked in ascending order of total expenditure on institutions.

Source: OECD Education Database.

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Educational expenditure per student in relation to national GDP

OECD countries invest an average of 20 per cent of GDP per capita per primary student, 26 per cent per secondary student and 47 per cent per tertiary student.

Expenditure per student relative to GDP per capita is a spending measure that takes into account the number of students that a country is trying to educate, as well as its relative wealth. Since education is universal at lower levels, spending per student relative to GDP per capita at the lower levels of education can be interpreted as the resources spent on young people relative to a country's ability to pay. At higher levels of education, this measure is affected by a combination of wealth, spending and enrolment rates.

At the tertiary level, for example, countries can be relatively high on this measure if a relatively large proportion of their wealth is spent on educating a relatively small number of students. For the OECD as a whole, expenditure per student averages 20 per cent of GDP per capita at the primary level, 26 per cent at the secondary level and 47 per cent at the tertiary level.

Poorer countries tend to spend relatively less per student...

There is a clear positive relationship between spending per student and GDP per capita (Chart B4.4), showing that poorer countries tend to spend relatively less per student than richer countries as measured by GDP per capita.

... but there are many exceptions.

Although the relationship between spending per student and GDP per capita is generally positive there is considerable variation in spending per student among both richer and poorer countries. Five countries with vastly different levels of wealth per capita (Hungary, Japan, Poland, Spain and the United States) spend similar proportions of that wealth on educating the typical primary student: approximately, the OECD country mean of 20 per cent. At the primary level, spending on this measure is 6 percentage points or more above the country mean in three countries (Austria, Denmark and Sweden) and 7 percentage points below the country mean in Ireland and Mexico.

The general picture is similar in secondary education. For example, among the poorest OECD countries, Mexico spends more of its GDP per capita on educating the average secondary student (22 per cent) than a substantially wealthier country such as Ireland (19 per cent). Among the richest OECD countries, Japan and the United States spend only 24 and 25 per cent of GDP per capita on educating the average secondary student, while Austria and Switzerland spend 36 and 35 per cent respectively.

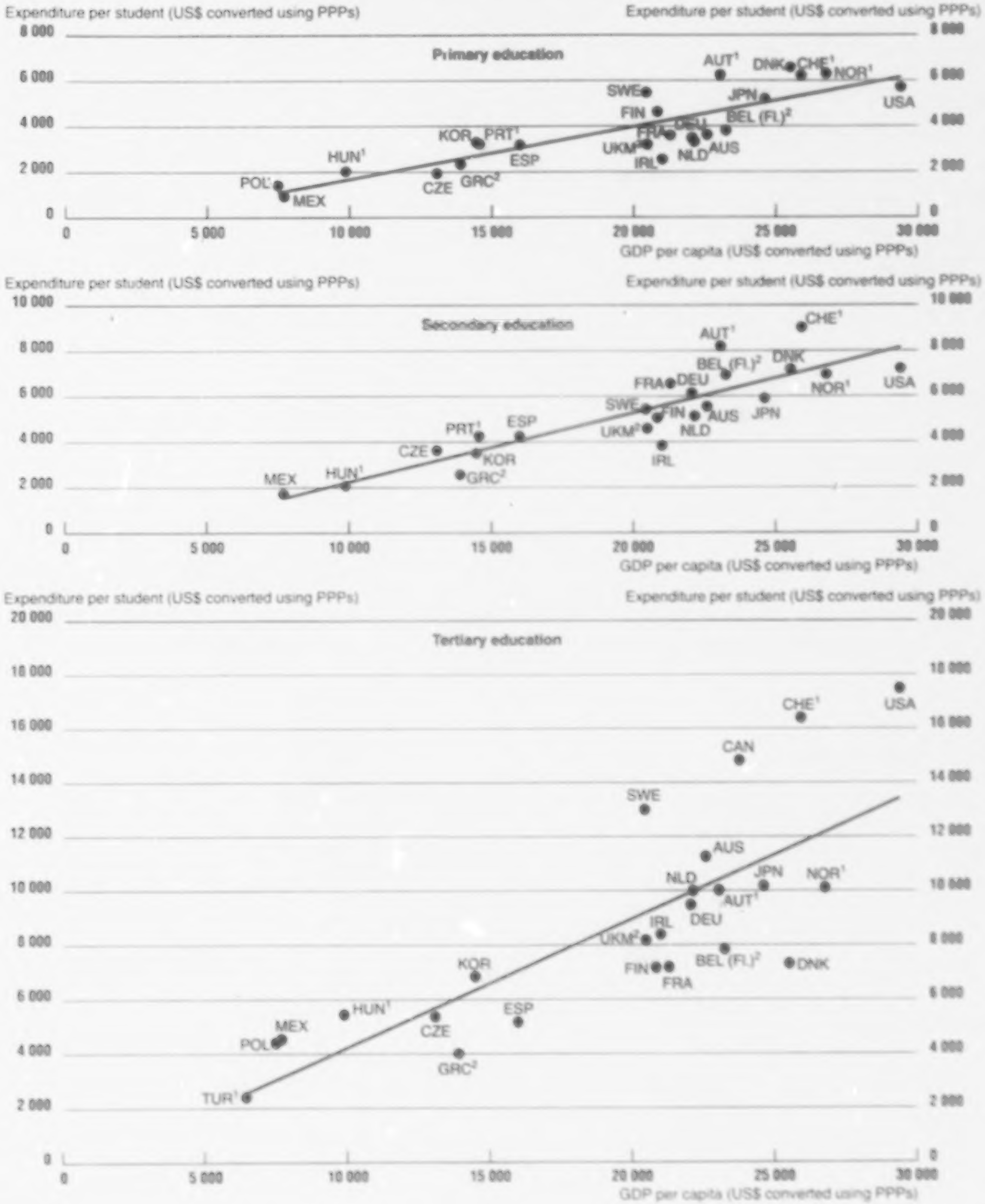
The range in spending between countries on this measure is much wider for tertiary than for primary education. For example, in Canada, Sweden and Switzerland, tertiary spending per student relative to GDP per capita is more than 15 percentage points above the OECD country mean of 47 per cent. At the other end of the scale, Denmark and Spain spend 15 percentage points or more below the OECD country mean. In the case of Denmark this can partially be explained due to exclusion of research expenditure.

Differences in educational expenditure per student across levels of education

Expenditure per student differ between countries in absolute terms, but relative spending per student also varies by level of education.

Comparisons of the distribution of expenditure between levels of education are an indication of the relative emphasis placed on education at different levels in various countries, as well as of the relative costs of providing education at those levels. Chart B4.5 presents expenditure per student in early childhood, secondary and tertiary education relative to expenditure per primary student.

Chart B4.4. **Annual educational expenditure per student in relation to GDP per capita, by level of education (1997)**

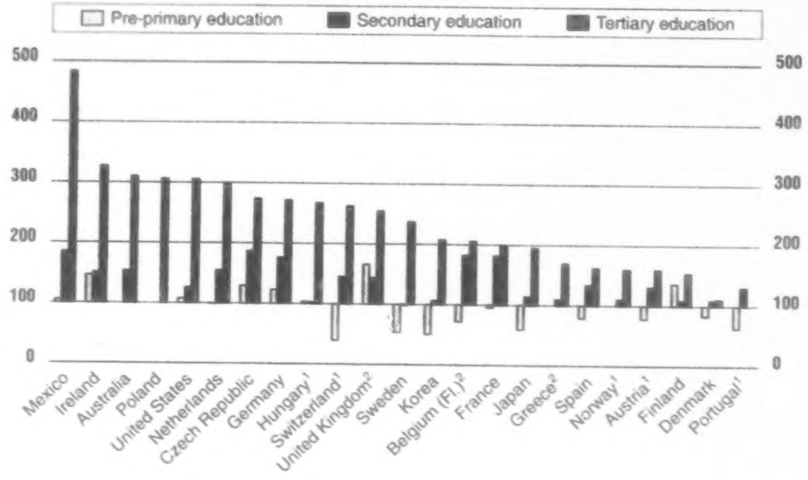


1. Public institutions.
2. Public and government-dependent private institutions.

Source: OECD.

Chart B4.5. **Ratio of educational expenditure per student at various levels of education to educational expenditure per student at the primary level, times 100 (1997)**

A ratio of 500 for tertiary education means that expenditure per tertiary student in a particular country is 5 times the expenditure per primary student. A ratio of 50 for pre-primary education means that expenditure per pre-primary student in a particular country is half the expenditure per primary student.



1. Public institutions.
2. Public and government-dependent private institutions.

Countries are ranked in descending order of expenditure per student in tertiary education relative to educational expenditure per student at primary level.

Source: OECD.

Although expenditure per student rises with the level of education in almost all countries, the relative sizes of the differences vary markedly between countries. At the secondary level, expenditure per student is, on average, 1.4 times that at the primary level, although the difference ranges from 1.0 times the expenditure per primary student in Sweden to more than 1.8 times in the Czech Republic, Flemish Community of Belgium, France and Mexico.

The most significant differences in spending per student by level of education occur at the tertiary level.

Although OECD countries spend, on average, 2.4 times more per student at the tertiary level than at the primary level, spending patterns vary widely between countries. For example, whereas Denmark only spends 1.1 times as much on a tertiary student as on a primary student, Mexico spends almost five times as much. These differences may even underestimate real differences in costs, as funding provided for tertiary education by private sources has not been adequately taken into account in some countries.

Educational expenditure per student over the average duration of tertiary studies

Annual expenditure per student does not always reflect the full cost of tertiary studies.

Since both the typical duration and the intensity of tertiary education vary between countries, the differences between countries in annual expenditure per student on educational services as shown in Chart B4.2 do not accurately reflect the variation in the total cost of educating the typical tertiary student.

Students can choose from a range of institutions and enrolment options.

Today, students can choose from a range of types of institutions and enrolment options in order to find the best fit between their degree objectives, abilities, personal interests and social and economic circumstances. Many students attend part-time, work while enrolled, attend sporadically or attend more than one institution before graduating. These varying enrolment patterns can affect the interpretability of expenditure per student.

Part-time attendance may explain some of the differences between countries.

The ranking of countries by annual expenditure per student on educational services is strongly affected by differences in how countries define full-time, part-time and full-time equivalent enrolment. Some countries count every participant at the tertiary level as a full-time student while others determine a student's intensity of participation by the credits which he or she obtains for successful completion of specific course units during a specified reference period. Countries that can accurately account for part-time enrolment will have higher expenditure per full-time equivalent student than countries that cannot differentiate between different modes of student attendance.

Low annual expenditure may translate into high overall costs of tertiary education if the duration of tertiary studies is long.

Similarly, comparatively low annual expenditure per student may result in comparatively high overall costs of tertiary education if the typical duration of tertiary studies is relatively long. Table B4.4 shows the average expenditure that is incurred per student throughout the course of tertiary studies in 17 countries. The figures account for all students for whom expenditure is incurred, including those who do not finish their studies. Although the calculations are based on a number of simplifying assumptions and therefore should be treated with some caution (see Annex 3), some striking shifts in the rank order of countries between the annual and aggregate expenditure can be noted.

For example, annual spending per tertiary-type A student in the Netherlands is about the same as in Germany (US$10 028 in the Netherlands compared with US$10 083 in Germany). But because of differences in the tertiary degree structure (Indicator C4), the average duration of university-equivalent studies is more than one third longer in Germany than in the Netherlands (6.1 years in Germany, compared with 3.9 years in the Netherlands). As a consequence, the aggregate expenditure for each university-equivalent student is more than 50 per cent higher in Germany than in the Netherlands (US$61 415 compared with US$39 108).

The total cost of tertiary-type A studies in Switzerland (US$90 298) is more than twice the cost of these studies in Australia, Canada, France, the Netherlands, and Norway. These differences must be interpreted in the light of possible differences between countries in the academic level of the qualifications of students leaving university. While similar trends are observed in tertiary-type B studies, the total cost of these studies tends to be much lower than that of tertiary type-A programmes, largely because of their shorter duration.

Important notes on interpretation

When differences between countries in expenditure per student are interpreted, a number of factors should be taken into account.

The data used in calculating expenditure per student include only direct public and private expenditure on educational institutions. Public subsidies for students' living expenses have been excluded to ensure the international comparability of the data.

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Expenditure data for students in private educational institutions are not available for some countries (indicated by one or two asterisks in the table). Many of the countries that have data on independent private institutions cover only a very small number of them. In such cases, only the expenditure on public and government-dependent private institutions is taken into account.

Variation in expenditure does not always reflect variation in real resources.

The variation in expenditure per student does not always reflect variation in real resources provided to students (for instance, variations in student/teaching staff ratios). In some cases, it reflects variation in relative prices.

DEFINITIONS

Data refer to the financial year 1997 and are based on the UOE data collection on education statistics, administered in 1999 (for details see Annex 3).

Expenditure per student on a particular level of education is calculated by dividing the total expenditure at that level by the corresponding full-time equivalent enrolment. Only those types of educational institution and programme are taken into account for which both enrolment and expenditure data are available. The enrolment data are adjusted by interpolation so as to match either the financial year or the calendar year of each country (Annex 3 gives details). The result in national currency is then converted into equivalent US dollars by dividing the national currency figure by the purchasing power parity (PPP) index. The PPP exchange rates used pertain to GDP and were derived from the OECD National Accounts Database for OECD countries and from the World Bank database for non-member countries (Annex 2 gives further details). The PPP exchange rate gives the amount of a national currency that will buy the same basket of goods and services in a given country as the US dollar in the United States. The PPP exchange rate is used because the market exchange rate is affected by many factors (interest rates, trade policies, expectations of economic growth, etc.) that have little to do with current, relative domestic purchasing power in different countries.

Data for 1990 are expressed in 1996 prices.

All expenditure data, as well as the GDP for 1990, are adjusted to 1996 prices using the private consumer price index.

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (the Reader's Guide gives details).

Expenditure per student relative to GDP per capita is calculated by expressing expenditure per student in units of national currency as a percentage of GDP per capita, also in national currency. In cases where the educational expenditure data and the GDP data pertain to different reference periods, the expenditure data are adjusted to the same reference period as the GDP data, using inflation rates for the country in question (see Annex 2).

Expected expenditure over the average duration of tertiary studies (Table B4.4) is calculated by multiplying current annual expenditure by the typical duration of tertiary studies. The methodology used for the estimation of the typical duration of tertiary studies is described in Annex 3.

For the estimation of the duration of tertiary education, data are based on a special survey carried out among OECD countries in 1997.

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Because of the implementation of the new ISCED-97 classification, post-1996 data on educational funding are not comparable with earlier data. The data used for computing the index of change have therefore been restricted to the years 1990-96 for comparability purposes, and are based on the ISCED-76 classification. There is no reason to expect that the change in ISCED classification would affect the magnitude of the trends observed in the various countries, since both starting and ending points would be adjusted similarly.

The data used for computing the index of change have been restricted to the years 1990-96 and are based on the ISCED-76 classification.

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Table B4.1 Expenditure per student (US dollars converted using PPPs) on public and private institutions by level of education (based on full-time equivalents) (1997)

	Early childhood	Primary	Lower secondary	Upper secondary	All secondary	Post-secondary non-tertiary	Tertiary		
							All	Tertiary-type B	Tertiary-type A and advanced research programmes
OECD countries									
Australia	m	3 633	5 012	6 443	5 570	7 437	11 240	7 852	12 024
Austria[1]	4 867	6 258	7 215	9 462	8 213	7 412	9 993	x	x
Belgium (Fl.)[2]	2 768	3 81[illegible]	x	x	6 938	x	7 834	x	x
Canada	3 942	m	m	m	m	4 862	14 809	14 872	14 783
Czech Republic	2 526	1 954	3 331	4 030	3 641	1 688	5 351	2 675	6 159
Denmark	5 487	6 596	6 615	7 683	7 198	7 585	7 294	x	x
Finland	6 340	4 639	4 613	5 463	5 065	m	7 145	6 902	7 192
France	3 462	3 621	6 087	7 167	6 564	5 163	7 177	7 683	7 040
Germany	4 288	3 490	4 652	9 322	6 149	10 839	9 466	5 623	10 083
Greece[2]	x	2 351	x	x	2 581	183	3 990	3 848	4 045
Hungary[1]	2 106	2 035	1 933	2 259	2 093	1 960	5 430	m	5 430
Iceland[1]	3 591	m	m	m	m	m	m	m	m
Ireland	2 559	2 574	x	x	3 864	3 783	7 998	x	x
Italy[1]	4 462	5 073	6 716	5 983	6 284	x	5 972	5 206	5 981
Japan	3 096	5 202	5 512	6 314	5 917	x	10 157	7 750	10 623
Korea	1 676	3 308	3 374	3 652	3 518	a	6 844	4 346	8 512
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	979	935	1 443	2 320	1 726	a	4 519	x	4 519
Netherlands	3 310	3 335	5 060	4 903	4 992	x	9 989	6 862	10 028
New Zealand	m	m	m	m	m	m	m	m	m
Norway[1]	m	6 315	6 315	7 358	6 973	x	10 108	x	x
Poland	m	1 435	x	1 452	m	x	4 395	x	4 293
Portugal[1]	2 044	3 248	4 183	4 356	4 264	a	m	x	x
Spain	2 520	3 180	3 295	5 335	4 274	x	5 166	4 301	5 217
Sweden	2 943	5 491	5 468	5 417	5 437	m	12 981	x	x
Switzerland[1]	2 451	6 237	7 393	10 833	9 045	7 856	16 376	14 825	16 560
Turkey[1]	m	m	m	m	m	m	2 397	x	x
United Kingdom[2]	5 312	3 206	x	x	4 609	x	8 169	x	x
United States	6 158	5 718	x	x	7 230	x	17 466	x	x
Country mean	**3 463**	**3 851**	**4 791**	**5 790**	**5 273**	**5 337**	**8 612**	**7 295**	**8 434**
OECD total	**3 788**	**3 769**	**4 175**	**5 312**	**5 507**	**7 084**	**10 893**	**6 765**	**8 252**
WEI participants									
Argentina[1]	1 054	1 224	1 467	1 781	1 575	a	11 552	3 494	m
Brazil[1, 3]	820	859	921	1 087	1 002	a	10 791	x	10 791
Chile	1 929	2 115	2 220	2 337	2 292	a	8 775	4 616	9 820
India[1]	28	160	225	334	253	m	m	m	m
Jordan[1]	528	706	659	1 176	807	m	m	m	m
Malaysia[1]	332	820	x	x	1 334	6 285	7 793	6 237	9 129
Paraguay[1]	x	482	x	x	690	x	19 271	19 271	m
Philippines[1]	74	373	570	570	570	3 189	2 170	a	2 170
Uruguay[1]	1 104	974	979	1 536	1 221	a	2 394	4 062	2 096
Zimbabwe	m	353	x	x	647	x	m	m	m

1 Public institutions
2 Public and government-dependent private institutions
3 1996 data
Source OECD Education Database See Annex 3 for notes

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Table B4.2. Expenditure per student relative to GDP per capita on public and private institutions by level of education (1997)

	Early childhood	Primary	Lower secondary	Upper secondary	All secondary	Post-secondary non-tertiary	Tertiary		
							All	Tertiary-type B	Tertiary-type A and advanced research programmes
OECD countries									
Australia	m	17	23	29	25	34	51	36	55
Austria[1]	21	27	31	41	36	32	43	x	x
Belgium (Fl.)[2]	12	16	x	x	29	x	33	x	x
Canada	17	x	x	x	x	20	62	63	62
Czech Republic	19	15	25	31	28	13	41	20	47
Denmark	22	26	26	30	28	30	29	x	x
Finland	31	23	23	27	25	m	35	34	35
France	16	17	29	34	31	24	34	36	33
Germany	19	16	21	42	28	49	43	26	46
Greece[2]	x	17	x	x	19	1	29	28	29
Hungary[1]	21	21	20	23	21	20	55	m	55
Iceland	14	m	m	m	m	m	m	m	m
Ireland	12	12	x	x	19	18	39	x	x
Italy[1]	m	m	m	m	m	m	m	m	m
Japan	13	21	22	26	24	x	41	31	43
Korea	12	23	23	25	24	a	47	30	59
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	13	12	19	30	22	a	59	x	59
Netherlands	15	15	23	22	23	x	45	31	45
New Zealand	m	m	m	m	m	m	m	m	m
Norway[1]	m	23	23	27	26	x	38	x	x
Poland	m	19	x	19	m	x	59	x	57
Portugal[1]	14	22	29	30	29	a	m	x	x
Spain	16	20	21	33	27	x	32	27	33
Sweden	14	27	27	27	27	m	64	x	x
Switzerland[1]	9	24	29	42	35	30	63	57	64
Turkey[1]	m	m	m	m	m	m	37	x	x
United Kingdom[2]	26	16	x	x	23	x	40	x	x
United States	21	19	x	x	25	x	59	x	x
Country mean	**17**	**19**	**24**	**30**	**26**	**19**	**45**	**35**	**48**
OECD total	**17**	**18**	**23**	**29**	**25**	**33**	**49**	**34**	**47**
WEI participants									
Argentina[1]	10	12	14	17	15	a	112	34	m
Brazil[1, 3]	13	13	14	17	16	a	167	x	167
Chile	15	17	17	18	18	a	69	36	77
India[1]	2	10	14	20	15	m	m	m	m
Jordan[1]	15	21	19	34	23	m	m	m	m
Malaysia[1]	4	10	x	x	16	77	96	77	112
Paraguay[1]	x	12	x	x	17	x	484	484	m
Philippines[1]	2	11	16	16	16	91	62	0	62
Uruguay[1]	12	11	11	17	13	a	26	44	23
Zimbabwe	m	15	x	x	28	x	m	m	m

1. Public institutions.
2. Public and government-dependent private institutions.
3. 1996 data.

Source: OECD Education Database. See Annex 3 for notes.

Table B4.3. **Index of change in spending on education, enrolment and expenditure per student between 1990 and 1996 (1990 = 100)**

	Primary and secondary education			Tertiary education		
	Total expenditure on institutions	Enrolment	Expenditure per student	Total expenditure on institutions	Enrolment	Expenditure per student
Australia	119	104	114	147	129	114
Austria[1]	126	105	120	129	118	109
Belgium (Fl.)	109	m	m	109	m	m
Canada	112	108	104	112	121	93
Czech Republic	m	134	m	m	150	m
Denmark	m	m	m	m	m	m
Finland	90	104	86	128	130	98
France	112	99	113	129	129	100
Germany	m	m	m	m	m	m
Hungary	62	m	m	70	m	m
Iceland	m	m	m	m	m	m
Ireland	131	97	136	166	156	107
Israel	m	112	m	m	m	m
Italy	84	89	95	89	126	70
Japan	m	m	m	m	m	m
Korea	m	89	m	m	139	m
Mexico	174	104	166	123	122	101
Netherlands	108	98	110	100	113	89
New Zealand	m	108	m	m	150	m
Norway	111	97	114	139	148	94
Poland	m	m	m	m	m	m
Portugal	137	89	153	149	268	56
Spain[1]	114	91	125	145	115	127
Switzerland[1]	108	106	101	99	116	86
Turkey	m	m	m	m	m	m
United Kingdom	110	109	101	148	176	84
United States	m	m	m	m	m	m

Note: All data are classified according to ISCED-76.

[1] Public institutions only.

Source: OECD Education Database. See Annex 3 for notes.

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Table B4.4 **Expenditure per student over the average duration of tertiary studies (1997)**

	Method[1]	Average duration of tertiary studies (in years)			Cumulative expenditure per student over the average duration of tertiary studies		
		All	Tertiary-type B	Tertiary-type A and advanced research programmes	All	Tertiary-type B	Tertiary-type A and advanced research programmes
Austria[2]	AF	6.4	2.3	7.4	63 957	x	x
Canada	CM	1.9	1.4	2.5	27 851	20 591	37 156
Denmark	AF	4.2	2.1	4.4	30 563	x	x
France	AF	4.7	2.8	5.3	33 597	21 265	37 351
Germany	CM	5.1	2.2	6.1	47 901	12 469	61 415
Greece[3]	CM	6.1	5.0	6.9	24 180	19 365	27 832
Hungary[2]	CM	3.9	a	3.9	21 127	m	21 127
Ireland	CM	2.6	2.0	3.0	21 601	x	x
Italy[2]	CM	4.2	1.1	4.9	m	m	m
Korea	CM	3.4	2.1	4.2	23 476	8 996	35 919
Mexico	AF	3.4	x	3.4	15 466	x	15 455
Netherlands	CM	3.9	a	3.9	38 959	a	39 108
Norway[2]	AF	3.3	2.5	4.0	33 053	x	x
Spain	AF	4.6	1.5	4.7	23 507	6 404	24 555
Switzerland[2]	CM	3.6	2.2	5.5	59 351	32 420	90 298
United Kingdom[3]	CM	3.4	1.8	3.5	27 774	x	x
Country mean		**4.1**	**1.9**	**4.5**	**32 824**	–	–
OECD total		**4.2**	**1.8**	**4.4**	**29 979**	–	–

Note. The duration of tertiary studies is obtained by a special survey conducted in 1997 for the academic year 1995. Programmes were classified according to ISCED-76.

[1] Either the Chain Method (CM) or an Approximation Formula (AF) was used to estimate the duration of tertiary studies.

[2] Public institutions.

[3] Public and government-dependent private institutions.

Source. OECD Education Database. See Annex 3 for notes.

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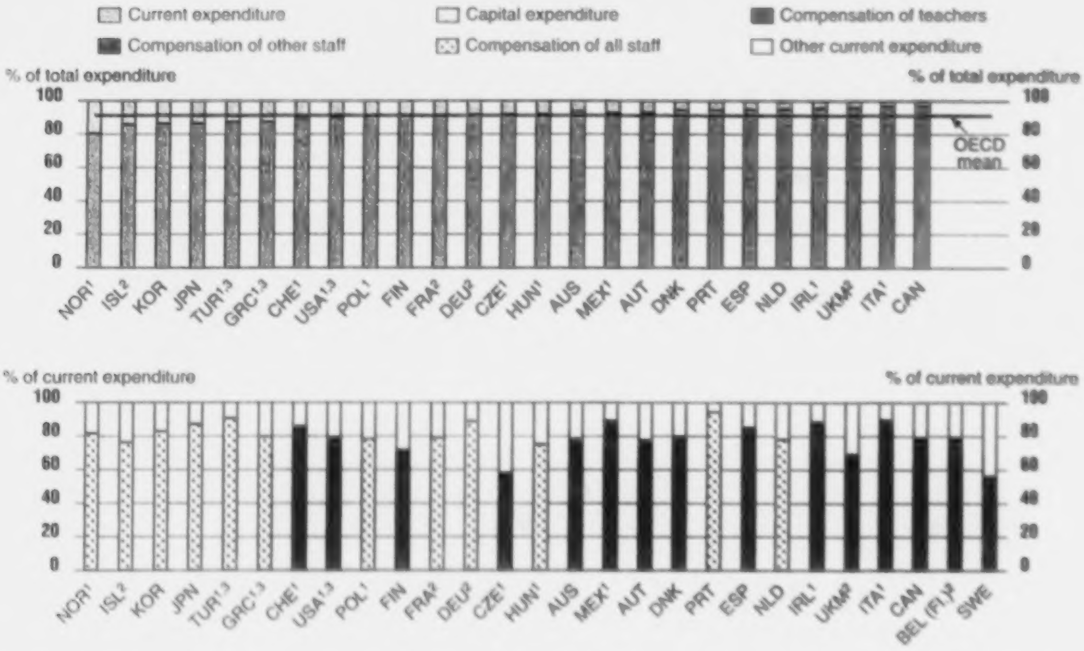
EDUCATIONAL EXPENDITURE BY RESOURCE CATEGORY

- At educational levels below tertiary education, the proportion of current expenditures ranges from 80 per cent in Norway to 97 per cent in Canada and Italy.
- The salaries of teachers and other staff employed in education account for the largest proportion of current expenditure in OECD countries.
- The proportion of total expenditure spent on capital outlays is highest at the tertiary level.
- At the tertiary level, countries tend to devote a higher proportion of current expenditure to services which are sub-contracted or bought in.

Chart B5.1. **Distribution of total expenditure and distribution of current expenditure for primary, secondary and post-secondary non-tertiary education by resource category (1997)**



1. Public institutions. 2. Public and goverment-dependent private institutions. 3. Excludes post-secondary non-tertiary education.

Countries are ranked in ascending order of current expenditure.

Source: OECD.

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POLICY CONTEXT

How spending is apportioned between different functional categories can affect the quality of instruction (*e.g.*, through teachers' salaries), the condition of educational facilities (*e.g.*, school maintenance) and the ability of the education system to adjust to changing demographic and enrolment trends (as in the construction of new schools). Comparisons of how different countries apportion educational expenditure between the various resource categories can provide some insight into variations in the organisation and operation of educational institutions. Decisions on the allocation of resources made at the system level, both budgetary and structural, eventually feed through to the classroom and affect the nature of instruction and the conditions under which it is provided.

This indicator compares countries with respect to the division of spending between current and capital outlays and the distribution of current expenditure by resource category.

EVIDENCE AND EXPLANATIONS

Educational expenditure can first be divided into current and capital expenditure. Capital expenditure comprises outlays on assets that last longer than one year and includes spending on the construction, renovation and major repair of buildings. Current expenditure comprises financial outlays on school resources used each year for the operation of schools.

Current expenditure can be further sub-divided into three broad functional categories: compensation of teachers, compensation of other staff, and other current expenditure (on, for example, teaching materials and supplies, maintenance of school buildings, preparation of student meals and renting of school facilities). The amount allocated to each of these functional categories will depend in part on current and projected changes in enrolment, on the salaries of educational personnel and on costs of maintenance and construction of educational facilities.

Education takes place mostly in school and university settings. The labour-intensive technology of education explains the large proportion of current spending within total educational expenditure. In primary, secondary, and post-secondary non-tertiary education combined, current expenditure accounts, on average across all OECD countries, for 91 per cent of total outlays.

There is some noticeable variation between countries with respect to the relative proportions of current and capital spending: at the primary/secondary/post-secondary non-tertiary level, the proportion of current expenditure ranges from 80 per cent in Norway to 97 per cent in Canada and Italy (Chart B5.1).

In most countries, over 75 per cent of current expenditure at the primary, secondary, and post-secondary non-tertiary levels is spent on staff salaries.

The salaries of teachers and other staff employed in education account for the largest proportion of current expenditure in OECD countries. On average across OECD countries, expenditure on the compensation of educational personnel accounts for 80 per cent of current expenditure at the primary, secondary and post-secondary non-tertiary levels of education combined. Although less than 60 per cent of expenditure in the Czech Republic and Sweden is devoted to the compensation of educational personnel, the proportion is 90 per cent or more in Italy, Portugal, and Turkey. In Ireland, Mexico, Poland and Portugal this commitment leaves less than US$400 per full-time student for expenditure other than on the compensation of educational

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personnel, such as on teaching materials and supplies, maintenance of school buildings, preparation of student meals and renting of school facilities (Table B5.1 in combination with B4.1).

OECD *countries with smaller education budgets invest relatively more in personnel and less in other services.*

OECD countries with relatively small education budgets (Mexico, Portugal and Turkey, for example) tend to devote a larger proportion of current educational expenditure to the compensation of personnel and a smaller proportion to services which are sub-contracted or bought in such as support services (*e.g.*, maintenance of school buildings), ancillary services (*e.g.*, preparation of meals for students) and renting of school buildings and other facilities.

The distribution of expenditure by resource category and, in particular, the proportion of expenditure accounted for by the compensation of educational personnel depend among other things on the ratio of students to teaching staff (Indicator B7), teachers' salaries (Indicator D1), the number of teaching hours for teachers and the division of teachers' time between teaching and other duties (Indicator D4).

Countries vary in the proportions of current expenditure which they allocate to the compensation of teachers and of other staff.

In Denmark and the United States over 20 per cent of staff expenditure in primary, secondary and post-secondary non-tertiary education combined goes towards compensation of personnel other than teachers; in Austria, the Flemish Community of Belgium and Ireland this figure is less than 10 per cent. These differences are likely to reflect the degree to which educational personnel specialise in non-teaching activities in a particular country (for example, principals who do not teach, guidance counsellors, bus drivers, school nurses, janitors and maintenance workers), as well as the relative salaries of teaching and non-teaching personnel.

In practice, the division of salary expenditure between teaching and non-teaching personnel is not clear-cut. Some countries define "teachers" narrowly as those who teach students in the classroom; others include heads of schools and other professional personnel. Because of these (and other) differences in definitions, as well as differences between countries in the coverage of non-teaching staff, the variation observed in the reported percentages of expenditure on non-teaching staff should be viewed with caution.

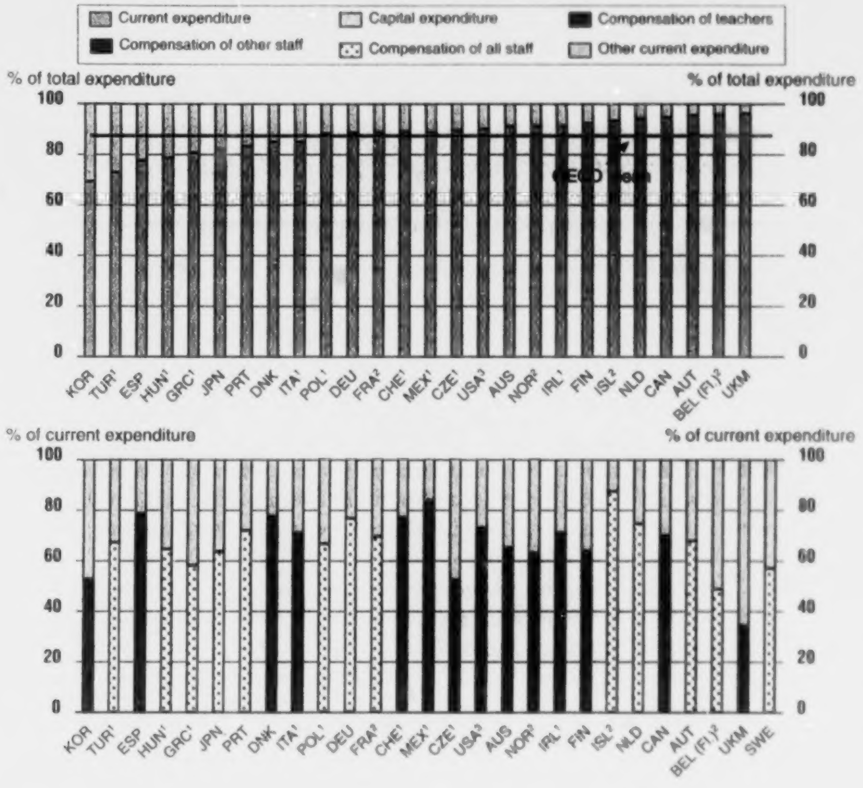
There is also some variation in the compensation of teachers between the 15 OECD countries reporting data. The average value of teachers' compensation per student ranges from below US$1 200 in the Czech Republic and Mexico to over US$4 000 in the Flemish Community of Belgium and Switzerland (Table B5.1 in combination with B4.1).

At the tertiary level, the proportion of capital expenditure is generally larger, because of more differentiated and advanced teaching facilities.

At the tertiary level, the proportion of total expenditure spent on capital outlays is larger than at the primary/secondary/post-secondary non-tertiary level. In 16 out of 26 OECD countries, the proportion spent on capital expenditure at the tertiary level is at or above 10 per cent, and in Hungary, Korea, Spain and Turkey it is above 20 per cent (Chart B5.2).

Differences are likely to reflect differences in how tertiary education is organised in each country, as well as the degree to which expansion in enrolments requires the construction of new buildings.

Chart B5.2. **Distribution of total expenditure and distribution of current expenditure for tertiary education by resource category (1997)**



1. Public institutions.
2. Public and goverment-dependent private institutions.
3. Includes post-secondary non-tertiary education.

Countries are ranked in ascending order of current expenditure.

Source: OECD.

Capital expenditure is considerably higher at the tertiary level than at the primary, secondary and post-secondary non-tertiary levels because of the much higher cost of facilities and equipment.

At the same time, the proportion of current expenditure spent on staff is considerably lower at the tertiary level than at the primary/secondary/post-secondary non-tertiary level. OECD countries, on average, spend 33 per cent of current expenditure at the tertiary level on purposes other than the compensation of educational personnel. This is explained by the much higher cost of facilities and equipment in higher education.

At the tertiary level, countries tend to devote a higher proportion of current expenditure to services which are sub-contracted or bought in.

DEFINITIONS

Data refer to the financial year 1997 and are based on the UOE data collection on education statistics administered in 1999 (for details see Annex 3).

The distinction between current and capital expenditures is the standard one used in national income accounting. Current expenditure is that on goods and services consumed within the current year, which has to be made recurrently in order to sustain the production of educational services. Capital expenditures is that on assets which last longer than one year, including outlays on construction, renovation, major repair of buildings and new or replacement equipment. The capital expenditure reported here represents the value of educational capital acquired or created during the year in question – that is,

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the amount of capital formation – regardless of whether the capital expenditure was financed from current revenue or by borrowing. Neither current nor capital expenditure includes debt servicing.

Calculations cover expenditure by public institutions or, where available, that of public and private institutions combined. Only expenditure on educational institutions is considered. The proportions of current expenditure allocated to compensation of teachers, compensation of other staff, total staff compensation and other (non-personnel) current outlays are calculated by expressing the respective amounts as percentages of total current expenditure. In some cases, compensation of teaching staff means compensation of classroom teachers only, but in others it includes that of heads of schools and other professional educators.

The average expenditure per student by resource category is calculated by multiplying expenditure per student in purchasing power parities as shown in Indicator B4 by the respective proportions of compensation of teachers and other personnel in total expenditure on educational institutions. Current expenditure other than on the compensation of personnel includes expenditure on services which are sub-contracted or bought in, such as support services (*e.g.*, maintenance of school buildings), ancillary services (*e.g.*, preparation of meals for students) and renting of school buildings and other facilities. These services are obtained from outside providers (unlike the services provided by the education authorities or educational institutions themselves using their own personnel).

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (the Reader's Guide gives details).

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Table B5.1. Educational expenditure by resource category for public and private institutions, by level of education (1997)

	Primary, secondary and post-secondary non-tertiary education						Tertiary education					
	Percentage of total expenditure		Percentage of current expenditure				Percentage of total expenditure		Percentage of current expenditure			
	Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure	Current	Capital	Compensation of teachers	Compensation of other staff	Compensation of all staff	Other current expenditure
OECD countries												
Australia	94	6	63	16	78	22	91	9	29	36	65	35
Austria	93	7	64	9	79	21	95	5	35	17	68	32
Belgium (Fl.)[2]	m	m	78	2	79	21	96	4	x	x	49	51
Canada	97	3	64	15	79	21	95	5	37	33	70	30
Czech Republic[1]	92	8	42	16	58	42	89	11	29	23	52	48
Denmark	94	6	53	26	80	20	85	15	52	26	78	22
Finland	91	9	60	11	71	29	92	8	39	25	64	36
France[2]	91	9	x	x	79	21	89	11	x	x	69	31
Germany[2]	92	8	x	x	89	11	88	12	x	x	76	24
Greece[1, 3]	87	13	x	x	79	21	81	19	x	x	58	42
Hungary[1]	92	8	x	x	75	25	79	21	x	x	65	35
Iceland[2]	86	14	x	x	76	24	93	7	x	x	87	13
Ireland[1]	96	4	84	4	88	12	91	9	47	24	71	29
Italy[1]	97	3	73	16	90	10	85	15	48	24	72	28
Japan	86	14	x	x	87	13	82	18	x	x	63	37
Korea	86	14	x	x	83	17	69	31	38	15	53	47
Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
Mexico[1]	93	7	77	12	89	11	89	11	66	18	84	16
Netherlands	95	5	x	x	78	22	94	6	x	x	75	25
New Zealand	m	m	m	m	m	m	m	m	m	m	m	m
Norway[1]	80	20	x	x	81	19	91	9	30	33	63	37
Poland[1]	91	9	x	x	78	22	88	12	x	x	67	33
Portugal	95	5	x	x	94	6	83	17	x	x	72	28
Spain	95	5	75	10	85	15	77	23	65	13	79	21
Sweden	m	m	44	12	56	44	m	m	x	x	57	43
Switzerland[1]	89	11	72	14	86	14	89	11	54	23	77	23
Turkey[1, 3]	87	13	m	m	91	9	73	27	m	m	67	33
United Kingdom[2]	96	4	51	18	69	31	96	4	19	14	34	66
United States[6]	90	10	57	22	79	21	90	10	45	28	73	27
Country mean	**91**	**9**	**64**	**14**	**80**	**20**	**87**	**13**	**42**	**23**	**67**	**33**
WEI participants												
Argentina[1, 3]	92	8	52	44	96	4	88	12	49	32	81	19
Brazil[1, 4]	93	7	82	x	82	18	94	6	78	x	78	22
Chile[1, 3]	94	6	x	x	67	33	m	m	x	x	89	11
India[2, 3]	97	3	83	8	91	9						
Israel[3, 5]	89	11	x	x	77	23	90	10	x	x	76	24
Jordan[1, 3]	86	14	88	8	96	4						
Malaysia[1]	89	11	68	16	84	16	66	34	x	x	x	x
Paraguay[1, 3]	93	7	77	18	95	5	86	14	9	3	12	88
Philippines[1]	86	14	x	x	83	17	86	14	x	x	74	26
Uruguay[1, 3]	94	6	74	14	88	12	94	6	59	20	79	21

1. Public institutions.
2. Public and government-dependent private institutions.
3. Excludes post-secondary non-tertiary education.
4. 1996 data.
5. 1995 data.
6. Post-secondary non-tertiary education included at the tertiary level.

Source: OECD Education Database. See Annex 3 for notes.

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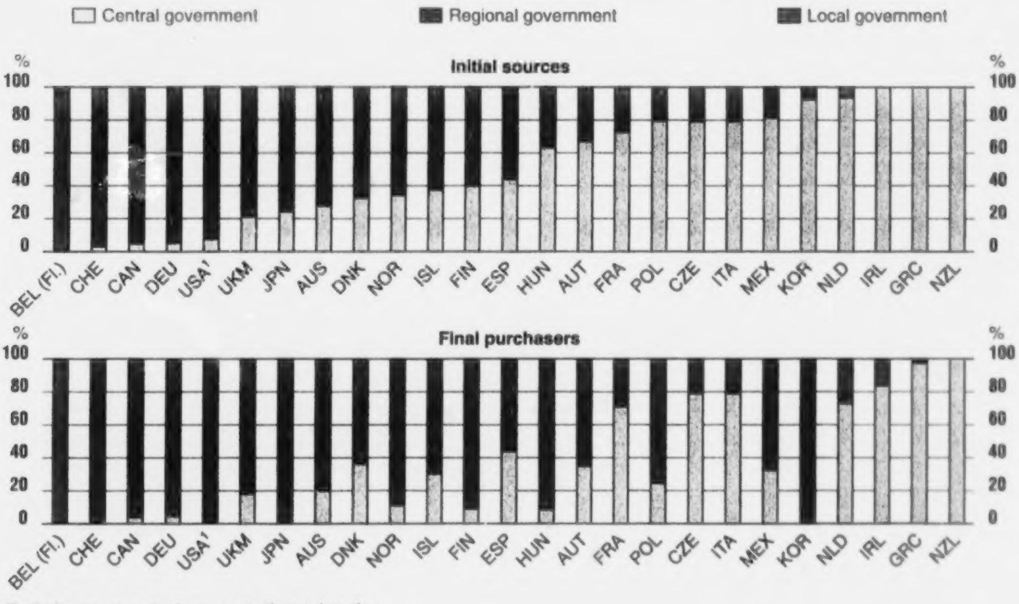
PUBLIC FUNDS BY LEVEL OF GOVERNMENT

- In many countries, the responsibility for funding primary, secondary, and post-secondary non-tertiary education is largely decentralised.
- By contrast, responsibility for funding tertiary education in OECD countries is mainly centralised.
- On average across OECD countries, 10 per cent of primary, secondary, and post-secondary non-tertiary public funds and 11 per cent of tertiary public funds are spent in private institutions.
- Overall, the level at which educational funds are provided does not correspond strongly to the level at which most educational decisions are made.

Chart B6.1. **Initial sources of public educational funds and final purchasers of educational resources by level of government for primary, secondary and post-secondary non-tertiary education (1997)**



1. Excludes post-secondary non-tertiary education.

Countries are ranked in ascending order of the percentage of initial funds from central government.

Source: OECD.

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POLICY CONTEXT

This indicator shows the sources of public funds by level of government,...

The level of government that has responsibility for, and control over, the funding of education is often thought to have a strategic advantage in influencing decisions regarding educational governance. An important question in educational policy is, therefore, the extent to which the division of responsibility for educational funding between national, regional and local authorities translates into responsibility for educational decision-making. Important decisions regarding educational funding are made both at the level of government where the funds originate and at the level of government by which they are finally spent or distributed. At the initial level, decisions are made concerning the volume of resources allocated, and any restrictions on how that money can be spent. At the final level, additional restrictions may be attached to the funds, or that level of government may even pay directly for educational resources (by paying teachers' salaries, for example).

Complete centralisation can cause delays in decision-making, and decisions that are far removed from those affected can fail to take proper account of changes in local needs and desired practices. Under complete decentralisation, however, units of government may differ in the level of educational resources which they spend on students, either because of differences in educational priorities or differences in the ability to raise educational funds. Wide variation in educational standards and resources can also lead to inequality of educational opportunity and insufficient attention to long-term national requirements.

... the distribution of public expenditure between public and private institutions...

Although public educational funds are largely spent on the delivery of education in the public sector, they often also support some types of private institutions. This way of sub-contracting education to the private sector is seen in many countries as a cost-effective strategy for providing education.

... and the relationship between centralisation of public funding and level of decision-making.

This indicator also directly relates to the role played by government in educational governance by virtue of its potential power over funding. The indicator examines the centralisation of educational funding and its relationship with the centralisation of decision-making about the organisation of instruction, personnel management, planning and school structures, and school resources.

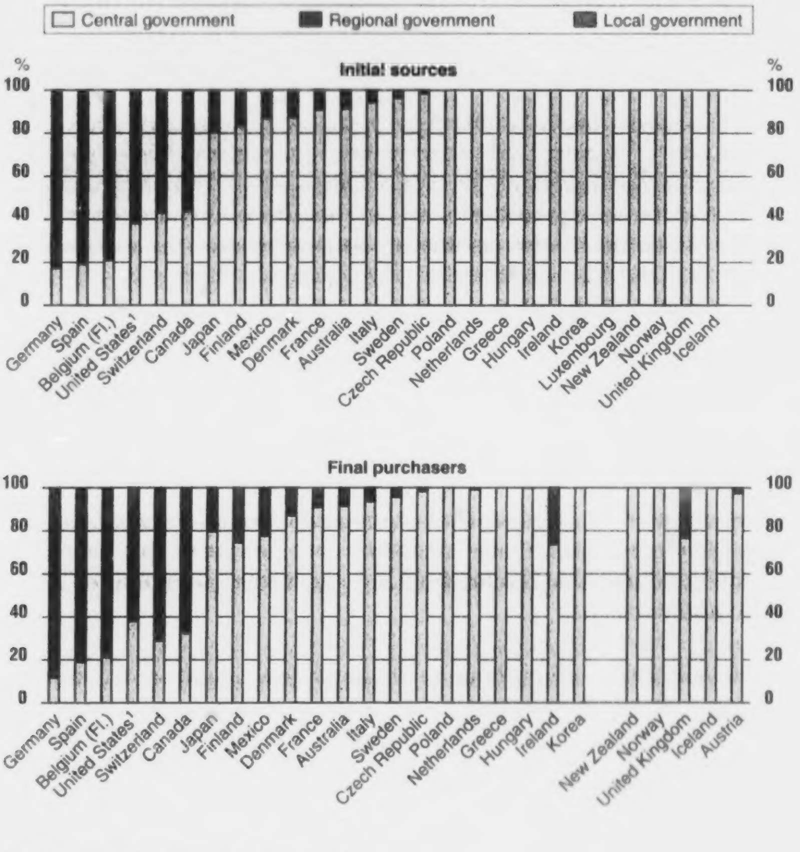
EVIDENCE AND EXPLANATIONS

With some notable exceptions, responsibility for funding tertiary education in OECD countries is mainly centralised.

The way in which responsibility for the funding of education is divided between levels of government differs between the primary/secondary/post-secondary non-tertiary and the tertiary level. Although countries differ considerably in the origin of funding for primary and secondary education, the pattern is quite similar at the tertiary level in most OECD countries. At this level of education, by far the largest proportion of public funds originate from central government. In 18 out of 26 OECD countries, central government is the initial source of more than 85 per cent of public funds for tertiary education (Chart B6.2). On average, central government is also the final source of 76 per cent of all public educational funds in OECD countries (after transfers between levels of government). In fact, in all except six of the OECD countries considered, more than 70 per cent of the final funds come from central government, and in 14 countries the proportion is higher than 90 per cent.

Chart B6.2. **Initial sources of public educational funds and final purchasers of educational resources by level of government for tertiary education (1997)**

With the exception of a few countries, responsibility for funding tertiary education in OECD countries is mainly centralised.



1. Includes post-secondary non-tertiary education.

Countries are ranked in ascending order of the percentage of initial funds from central government.

Source: OECD.

In six OECD countries, regional governments provide the majority of tertiary education funds.

In the Flemish Community of Belgium, Canada, Germany, Spain, Switzerland and the United States, more than half of the initial funds for tertiary education are generated and spent by regional governments. In fact, in Germany and Spain tertiary education is funded almost exclusively by regional governments.

Local authorities do not have an important role in financing tertiary education, with the exception of Denmark, Finland and the United States, where 10 per cent or more of the funds are initially generated and spent by local government.

In Ireland and the UK, resources are generated centrally but a substantial proportion are spent locally.

Although in the majority of OECD countries there are very few intergovernmental transfers at the tertiary level (*i.e.*, educational funds are spent at the level where they originate), Ireland and the United Kingdom differ from this overall pattern. In these two countries, while initial funding is entirely centralised, a quarter to a third of the final spending takes place at the local level.

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Countries differ in the division of responsibility for funding primary, secondary, and post-secondary non-tertiary education.

The division of responsibility for funding primary/secondary/post-secondary non-tertiary education varies much more between OECD countries than it does at the tertiary level. In many countries, the funding of primary, secondary, and post-secondary non-tertiary education shows much more decentralisation. In general, countries can be grouped according to the percentage of public funds generated and spent by central, regional and local governments.

Four basic patterns can be observed:

Central government is both the main initial source of funds and the main final spender on education.

- In the Czech Republic, France, Greece, Ireland, Italy, the Netherlands and New Zealand the central government is the source of the majority of initial funds as well as the main final spender. In both New Zealand and Portugal 100 per cent of funds are raised and spent by central government.

Central government is the main initial source but funds are transferred to regional or local authorities.

- Central government is the main initial source of funds, but regional or local authorities are the main final purchasers of educational services in Austria, Hungary, Korea, Mexico and Poland. In Korea 92 per cent of the initial funds originate from central government but regional governments are the only spender.

Regional authorities are both the main initial sources and the main final purchasers.

- Regional governments are both the main initial sources and the main final spenders of educational funds in Australia, the Flemish Community of Belgium, Germany, Japan, Spain and Switzerland, although in Australia, Japan and Spain between 24 and 44 per cent of funds are generated by central government.

Funding responsibilities are shared between regional and local authorities.

- In Canada and the United States, regional governments are the main initial source of funds, but in these countries local authorities are the main final purchasers of educational services, with regional governments spending 15 and 1 per cent of funds respectively.
  In the United Kingdom, Norway, Iceland, Finland, and Denmark, local authorities are both the main initial source of funds and the main final purchasers of educational services.

An alternative form of final spending is the transfer of public money to private institutions.

While in the majority of OECD countries education funded from public sources is also organised and delivered by public institutions, in some countries, a considerable amount of final funds are transferred to government-dependent private institutions. In other words, the final spending and delivery of education is sub-contracted to non-governmental institutions (Table B6.2).

In the Flemish Community of Belgium and the Netherlands, a considerable proportion of public funds are transferred to private institutions.

On average across OECD countries, 10 per cent of primary, secondary, and post-secondary non-tertiary and 11 per cent of tertiary public funds designated for educational institutions are spent in institutions that are privately managed. In the Netherlands, where central government is the major final source of funds, 75 per cent of public funds for primary, secondary, and post-secondary non-tertiary educational institutions and 47 per cent of public funds for tertiary institutions are transferred from central government to government-dependent private institutions. In the Flemish community of Belgium, 63 per cent of the funds for educational institutions are transferred to government-dependent private institutions at the primary, secondary, and post-secondary non-tertiary levels and 48 per cent at the tertiary level. In the United Kingdom, 100 per cent of public funding of tertiary education is spent in government-dependent private institutions.

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Although such funds are spent in privately managed institutions, they can also come with attendant restrictions. For example, teachers may be required to meet some minimum level of qualification, and students may be required to pass a government-regulated examination in order to graduate. Government-dependent private institutions are commonly subject to a range of government legislation and supervision (*e.g.*, inspection).

At the primary, secondary, and post-secondary non-tertiary levels of education, government funding of independent private institutions (defined as institutions receiving less than 50 per cent of their core funding from public sources) is negligible in OECD countries. It is more common for independent tertiary institutions to receive public funding. In Japan, Korea and the United States, 13 per cent or more of public funds designated for tertiary education institutions are spent in independent private institutions.

Relationship between centralisation of public funding and level of decision-making in lower secondary education

Centralisation of educational funding is closely related to decisions about the allocation and use of resources.

The amount of public lower secondary school funds provided by the various levels of government levels is closely related to decisions about the allocation and use of resources (Chart B6.3). This relationship is evident in several countries such as Austria, Ireland, Norway and Turkey. In Turkey, central government raises 100 per cent of school funds for primary, secondary, and post-secondary non-tertiary education and also makes all decisions about allocation of resources to schools. A similar relationship exists in Ireland. In a few other countries, such as France, Germany, Greece, Italy, Portugal and Spain there is also a fairly close correspondence between the level of educational funding and that at which decisions about resources are made, although decisions about resources get are usually made at a slightly lower level of government. Lastly, in countries such as the Czech Republic, Hungary, the Netherlands, New Zealand and to a lesser extent the United States, decisions about allocation of resources tend to be made at a much lower level than that at which educational funds originate.

There appears to be little relationship between centralisation of funding and decision-making about personnel management.

Centralisation of funding does not appear to be strongly related to decision-making about personnel management (*e.g.*, the hiring of educational staff, or setting of salary scales for teachers and other school staff). In countries such as Ireland and New Zealand, central government provides 100 per cent of public funding for primary and secondary education, but decisions about the hiring of teachers are made at the school level. Similar situations exist in the Czech Republic and the Netherlands, where central governments provide most of the funding for education but schools hire the teachers for specific teaching posts.

The funding of education also bears little relationship to decision-making about planning and school structures and the organisation of instruction. While the sources of funding range from highly centralised to highly decentralised across the various countries, decisions about things such as the assessment of students' work, course content, or the choice of textbooks are typically made at the school site in almost all countries.

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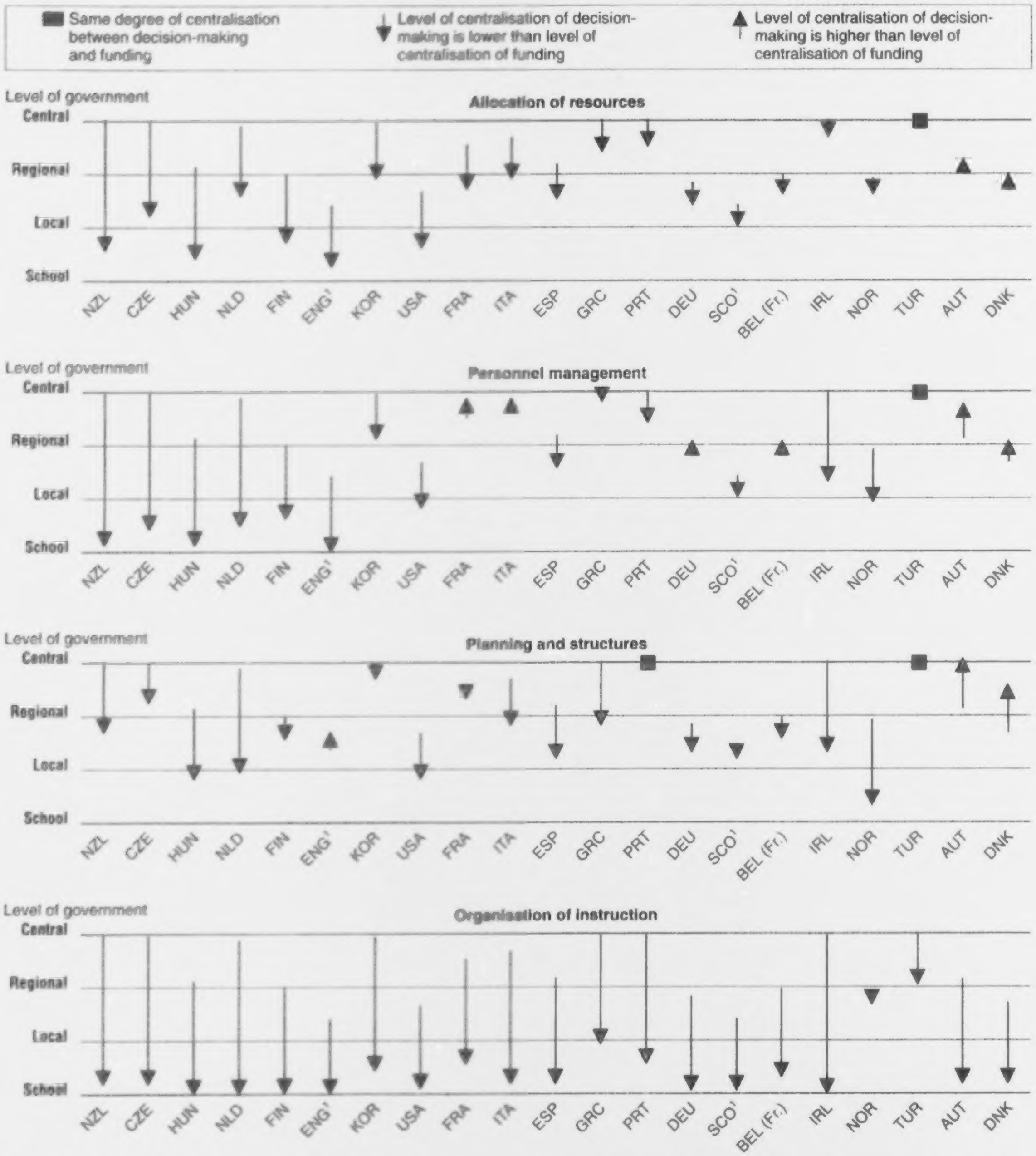
Chart B6.3. **Relationship between centralisation of public school funding and centralisation of educational decision-making in lower secondary education (1998)**



The beginning of the arrows represents the degree of centralisation of public school funding. The end of the arrows represents the degree of the centralisation of decision-making in education (for the calculation of the indices see definitions).

Example: In New Zealand public school funding is entirely centralised but decisions about the use and allocation of school resources are made largely at the local and school levels. In contrast, in Turkey the central government raises all public school funds and makes all decisions regarding school resources.

1. Data on decision-making were not provided for the United Kingdom as a whole. Only separate data for England and Scotland were reported.

Countries are ranked in descending magnitude of difference between centralisation of school funding and centralisation of decision-making about the allocation of resources.

Source: OECD.

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Overall, the level at which educational funds are provided does not correspond strongly to the level at which most educational decisions are made.

Overall, the level at which educational funds are provided does not correspond strongly to the level at which most educational decisions are made. Funding levels correspond most strongly to decisions about allocation of resources, but do not show a strong relationship with decision-making about personnel management, the organisation of instruction, and planning and school structures. Clearly, the level at which funds are provided for education does not determine the level at which educational decisions are made.

DEFINITIONS

Data refer to the financial year 1997 and are based on the UOE *data collection on education statistics administered in 1999. Data on the level of decision-making are from a 1998* OECD/INES *survey and refer to 1998.*

The initial educational expenditure of each level of government – also referred to as the expenditure originating at that level – is the total educational expenditure of all public authorities at the level in question (direct expenditure plus transfers to other levels of government and to the private sector), less the transfers received from other levels of government. The proportion of initial expenditure made by a particular level of government is calculated as a percentage of the total, consolidated expenditure of all three levels. Only expenditure specifically designated for education is taken into account in determining the proportion of initial expenditure borne by a particular level. General-purpose transfers between levels of government, which provide much of the revenue of regional and local governments in some countries, have been excluded from the calculations.

The final expenditure of each level of government includes funds spent directly on educational institutions and transfers to households or other private entities (after transfers from other levels of government have occurred).

The country mean is calculated as the simple average over all OECD countries for which data are available. The OECD total reflects the value of the indicator if the OECD region is considered as a whole (the Reader's Guide gives details).

The Glossary at the end of this volume gives a definition of public, government-dependent private and independent private institutions.

A centralisation of funding index was created for each country. The index was then correlated with an index of centralisation of decision-making for each education decision.

In order to establish a measure of centralisation of funding, an index was developed using the following methodology: first, the proportions of public education funds for primary and secondary education from central, regional, and local sources were established. Then the proportion of funds from central sources (expressed as a decimal) was multiplied by four (4), the proportion of funds from regional sources was multiplied by three (3), and the proportion of funds from local sources was multiplied by two (2). These products were then summed to produce an index of funding centralisation. The potential range on the index was from 2.0 (decentralised funding) to 4.0 (centralised funding). This centralisation of funding index was correlated with an index of centralisation of decision-making across the four domains of 1) resources, 2) personnel management, 3) planning and structures, and 4) organisation of instruction, computed as the average of the level of government at which different types of decision within a domain are taken in lower secondary education (*e.g.*, 4 = central, 3 = regional, 2 = local, and 1 = school). Data on the level of decision-making are from an OECD survey carried out in Member countries in 1998 and refer to 1998 data.

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The 20 OECD countries with available data vary considerably in their centralisation of public funding for primary and secondary education. At one end of the spectrum are countries such as Greece, Ireland, New Zealand, Portugal and Turkey, in which central government provides 100 per cent of school funds. These five countries had a score of 4.00 on the centralised funding index. Other countries with very centralised funding systems include the Czech Republic, France, Italy, Korea and the Netherlands. These countries scored between 3.34 and 3.99 on the centralisation index. Countries in the middle of the decentralisation continuum include Austria, Belgium, Denmark, Finland, Germany, Hungary, Norway and Spain. Their centralisation indices ranged between 2.67 and 3.33. Finally, countries with more decentralised funding systems include the United Kingdom (England and Scotland) and the United States. These countries scored between 2.00 and 2.66 on their index of centralisation of funding.

As the centralisation index is designed to measure funding from all three levels of government, it may not fully capture differences in patterns of funding between countries. Countries may in fact have similar indices but different mixtures of funding. Belgium and Finland, for example, have indices of 2.96 and 2.98 respectively. However, in Belgium nearly all school funds are provided by regional government while in Finland there is a balance of funds from central and local government, with no funding at the regional level.

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Table B6.1a. **Initial sources of public educational funds and final purchasers of educational resources by level of government for primary, secondary and post-secondary non-tertiary education (1997)**

	Initial funds (before transfers between levels of government)				Final funds (after transfers between levels of government)			
	Central	Regional	Local	Total	Central	Regional	Local	Total
Australia	28	72	n	100	20	80	n	100
Austria	67	12	21	100	35	44	21	100
Belgium (Fl.)	n	95	5	100	n	94	6	100
Canada	5	62	33	100	4	15	81	100
Czech Republic	79	a	21	100	79	a	21	100
Denmark	32	11	56	100	36	12	52	100
Finland	40	a	60	100	9	a	91	100
France	73	11	16	100	71	13	16	100
Germany	5	77	18	100	5	73	22	100
Greece	100	n	a	100	97	3	a	100
Hungary	63	x	37	100	8	x	92	100
Iceland	37	n	63	100	30	n	70	100
Ireland	100	a	n	100	84	a	16	100
Italy	79	4	17	100	79	4	17	100
Japan	24	57	19	100	1	81	19	100
Korea	92	8	a	100	n	100	a	100
Luxembourg	m	a	m	m	m	m	m	m
Mexico	81	19	n	100	33	66	1	100
Netherlands	94	n	6	100	73	n	27	100
New Zealand	100	a	a	100	100	a	a	100
Norway	34	a	65	100	11	a	88	100
Poland	76	a	20	100	23	a	73	100
Portugal	m	m	m	m	m	m	m	m
Spain	44	51	5	100	44	51	5	100
Sweden	m	m	m	m	m	m	m	m
Switzerland	3	52	44	100	n	57	42	100
Turkey	m	m	m	m	m	m	m	m
United Kingdom	21	a	79	100	18	a	82	100
United States[1]	7	50	43	100	1	1	98	100
Country mean	**53**	**25**	**25**	**100**	**40**	**28**	**38**	**100**

[1] Excludes post-secondary non-tertiary education.

Source: OECD Education Database. See Annex 3 for notes.

Table B6.1*b*. **Initial sources of public educational funds and final purchasers of educational resources by level of government for tertiary education (1997)**

	Initial funds (before transfers between levels of government)				Final funds (after transfers between levels of government)			
	Central	Regional	Local	Total	Central	Regional	Local	Total
Australia	92	8	n	100	92	8	n	100
Austria	m	m	m	m	97	3	n	100
Belgium (Fl.)	21	78	1	100	21	77	1	100
Canada	44	56	n	100	32	68	n	100
Czech Republic	98	a	2	100	98	a	2	100
Denmark	87	3	10	100	87	3	10	100
Finland	83	a	17	100	75	a	25	100
France	91	5	4	100	91	5	4	100
Germany	17	81	2	100	12	86	2	100
Greece	100	n	a	100	100	n	a	100
Hungary	100	n	n	100	100	n	n	100
Iceland	100	n	n	100	100	n	n	100
Ireland	100	a	n	100	74	a	26	100
Italy	94	6	n	100	93	6	n	100
Japan	80	20	x	100	80	20	n	100
Korea	m	m	a	m	m	m	a	m
Luxembourg	100	a	m	m	m	a	a	m
Mexico	87	13	n	100	77	22	n	100
Netherlands	100	n	n	100	99	n	1	100
New Zealand	100	a	a	100	100	a	a	100
Norway	100	a	n	100	100	a	a	100
Poland	100	a	n	100	100	a	n	100
Portugal	m	m	m	m	m	m	m	m
Spain	19	80	1	100	19	80	1	100
Sweden	97	3	a	100	96	4	a	100
Switzerland	43	56	1	100	29	70	1	100
Turkey	m	m	m	m	m	m	m	m
United Kingdom	100	a	n	100	77	a	23	100
United States[1]	39	52	11	100	39	52	11	100
Country mean	**80**	**19**	**2**	**100**	**76**	**20**	**4**	**100**

[1] Includes post-secondary non-tertiary education.

Source: OECD Education Database. See Annex 3 for notes.

Table B6.2. **Proportion of public expenditure on public and private educational institutions (1997)**

	Primary, secondary and post-secondary non-tertiary education				Tertiary education			
	Public institutions	Government-dependent private institutions	Independent private institutions	All private institutions	Public institutions	Government-dependent private institutions	Independent private institutions	All private institutions
OECD countries								
Australia	83	17	n	17	100	n	n	n
Austria	98	x	x	2	98	x	x	2
Belgium (Fl.)	37	63	n	63	52	48	n	48
Canada	98	1	1	2	100	n	n	n
Czech Republic	96	4	a	4	99	1	a	1
Denmark	93	7	n	7	100	n	n	n
Finland	96	4	a	4	89	11	a	11
France	86	14	n	14	96	4	n	4
Germany	93	4	3	7	97	3	n	3
Greece	100	a	a	a	100	a	a	a
Hungary	95	5	a	5	94	6	a	6
Iceland	99	1	n	1	100	n	n	n
Ireland	100	a	n	n	100	a	n	n
Italy	97	2	n	3	98	n	2	2
Japan	96	a	4	4	83	a	17	17
Korea	88	12	a	12	85	a	15	15
Luxembourg	m	m	m	m	97	3	a	3
Mexico	100	a	n	n	100	a	a	a
Netherlands	25	75	x	75	53	47	n	47
New Zealand	99	a	1	1	100	a	a	a
Norway	95	5	x	5	97	1	1	3
Poland	m	m	m	m	m	m	m	m
Portugal	93	7	n	7	m	m	n	n
Spain	87	13	n	13	100	n	n	n
Sweden	98	2	x	2	93	n	7	7
Switzerland	93	x	x	7	95	x	x	5
Turkey	m	m	m	m	m	m	m	m
United Kingdom	84	16	n	16	a	100	n	100
United States[1]	100	n	n	n	87	a	13	13
Country mean	**90**	**11**	**n**	**10**	**90**	**9**	**2**	**11**
WEI participants								
Argentina	87	13	x	13	97	3	x	3
Brazil[2]	98	a	2	2	99	a	1	1
Chile	67	32	n	33	56	39	4	44
India[1]	68	32	n	32	m	m	m	m
Indonesia	92	a	8	8	75	a	25	25
Israel[1, 3]	78	22	n	22	10	88	3	90
Jordan[1]	100	a	a	a	m	m	m	m
Malaysia	100	n	a	n	100	n	a	n
Philippines	100	a	a	a	100	a	a	a
Russian Federation	100	n	n	n	100	n	n	n
Uruguay	100	a	a	a	100	a	a	a

[1] Post-secondary non-tertiary education is included in tertiary education.

[2] 1996 data.

[3] 1995 data.

Source: OECD Education Database. See Annex 3 for notes.

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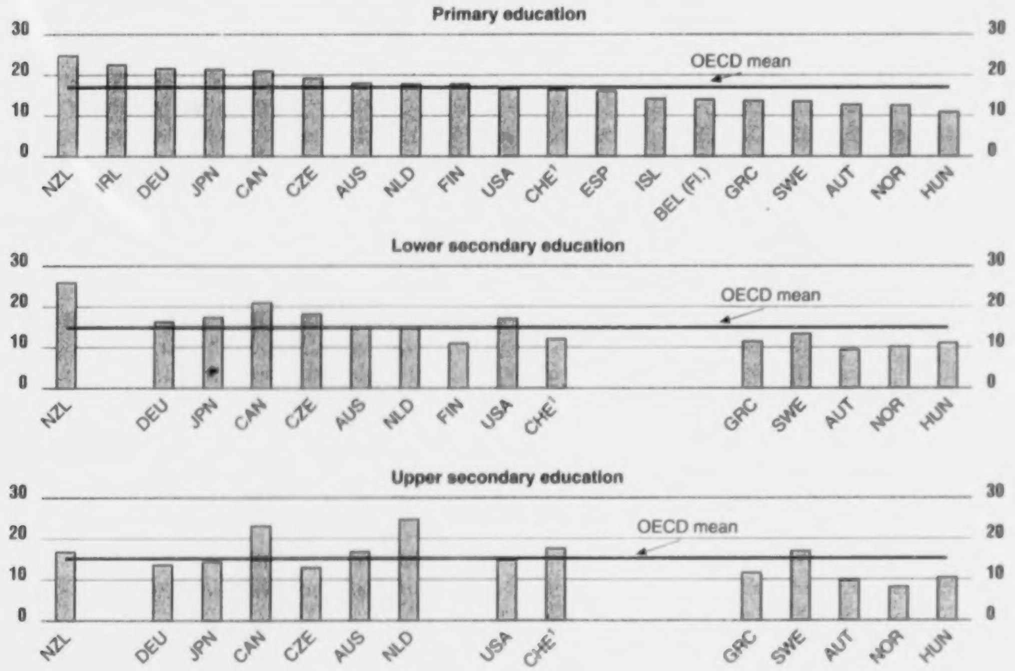
RATIO OF STUDENTS TO TEACHING STAFF

- The ratio of students to teaching staff at the primary and secondary levels varies widely across OECD countries, from a high of 24.7 students per teacher in New Zealand to a low of 11.0 in Hungary at the primary level, and from a high of 22.1 in Canada to a low of 9.5 in Austria at the secondary level.
- The ratio of students to teaching staff improves as the level of education rises, being highest at the primary level and lowest at the tertiary level.

Chart B7.1. **Ratio of students to teaching staff by level of education (1997)**
Number of students per teacher in full-time equivalents



1. Public institutions only.

Countries are ranked in descending order of number of students per teacher at the primary level of education.

Source: OECD.

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POLICY CONTEXT

This indicator shows the ratio of students to teaching staff at the different levels of education.

Although computers and information technology are becoming increasingly important as learning tools in schools, teachers are the most important resource in student instruction. The ratio of students to teaching staff is therefore an important indicator of the resources which countries devote to education. Because of the difficulty of constructing direct measures of educational quality, indicators on levels of investment in educational provision are often used as proxies to measure educational quality.

As countries face increasing constraints on education budgets, many are considering trade-offs in their investment decisions. Smaller student/teaching staff ratios may have to be weighed against higher salaries for teachers and larger class sizes, greater investment in instructional technology, or more widespread use of assistant teachers and paraprofessionals, whose salaries are often considerably lower than those of qualified teachers. Moreover, as larger numbers of children with special educational needs are integrated into normal classes, more use of specialised personnel and support services may limit the resources available for reductions in the ratio of students to teaching staff.

EVIDENCE AND EXPLANATIONS

Primary and secondary education

In Ireland and New Zealand, the ratio of students to teaching staff in primary education is more than twice as high as in Hungary.

The ratios of students to teaching staff in primary and secondary education vary widely between OECD countries. In primary education, student/teaching staff ratios, expressed in full-time equivalents, range from a high of 24.7 students per teacher in New Zealand to a low of 11.0 in Hungary. The mean OECD student/teaching staff ratio in primary education is 17.3 students per teacher, which is close to the ratios observed in Finland (17.7), and the Netherlands (17.8) (Chart B7.1).

There is a similar variation between countries in student/teaching staff ratios at the secondary level, ranging from a high of 22.1 in Canada to a low of 9.5 in Austria. The mean OECD student/teaching staff ratio in secondary education is 15.2, which is close to the ratios for Sweden (15.3), the Czech Republic (15.4), Australia and Germany (both 15.5).

Student access to teachers improves between primary and secondary education.

As the difference in mean student/teaching staff ratios between primary and secondary education indicates, there are fewer students per teacher as the level of education rises. With the exception of Canada and Sweden, the ratio of students to teaching staff decreases in every OECD country between the primary and the secondary level.

Germany, Ireland and Japan have the largest differences in their primary and secondary student/teaching staff ratio.

Although countries' relative positions for this indicator tend to remain fairly similar for both primary and secondary education, some countries show a greater difference than others in their student/teaching staff ratio between the primary and the secondary level. The largest decreases between the primary and the secondary level occur in Germany, Ireland and Japan. These differences may indicate differences in the relative importance which countries give to student access to teaching staff at a particular level of education, but they may also reflect delays in the adaptation of the teaching force to changing demographic conditions, or differences in teaching hours for teachers at the different levels of education.

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Many factors contribute to these differences.

A broad range of factors have to be considered in the interpretation of differences in student/teaching staff ratios, including institutional structures, typical class or lecture sizes, the number of classes taught by a typical "teacher" per term, the degree of "hands-on" training, and the duration of studies. In addition, more accurate definitions of "teachers" and more precise counts of full-time equivalent students and teachers may be required to produce comparable student/teaching staff ratios.

The student/teaching staff ratio is not an indicator of class size.

It must be emphasised that the ratio of students to teaching staff does not translate directly into class size. Although one country may have a lower ratio of students to teaching staff than another, this does not necessarily imply that classes are smaller in the first country or that students in the first country receive more teaching. The relationship between the student/teaching staff ratio and both average class size and hours of instruction per student is complicated by many factors, including differences between countries in the length of the school year, the number of hours for which a student attends class each day, the length of a teacher's working day, the number of classes or students for which a teacher is responsible, the division of the teacher's time between teaching and other duties, the grouping of students within classes, and the practice of team teaching.

Tertiary education

In general, student/teaching staff ratios at the tertiary level tend to be lower than those in both primary and secondary education.

The average student/teaching staff ratio of OECD countries in public and private institutions at the tertiary level is the lowest of all educational levels. Student/teaching ratios in public and private tertiary institutions range from a high of 26.3 students per teacher in Greece to below 12.0 in Hungary, Iceland, Japan and Sweden (Chart B7.2). Such comparisons in tertiary education, however, should be undertaken cautiously: difficulties in calculating full-time equivalent students and teachers on a comparable basis still persist.

In all but one country, Germany, the ratio of students to teaching staff is lower in tertiary-type B programmes, which are generally more occupationally specific, than in tertiary-type A programmes. The average student/teaching staff ratio in tertiary-type B programmes across OECD countries is 12.5 in contrast to 13.8 in tertiary-type A and advanced research programmes.

Early childhood education

Student/teaching staff ratios in early childhood education tend to be in between those for primary and secondary education.

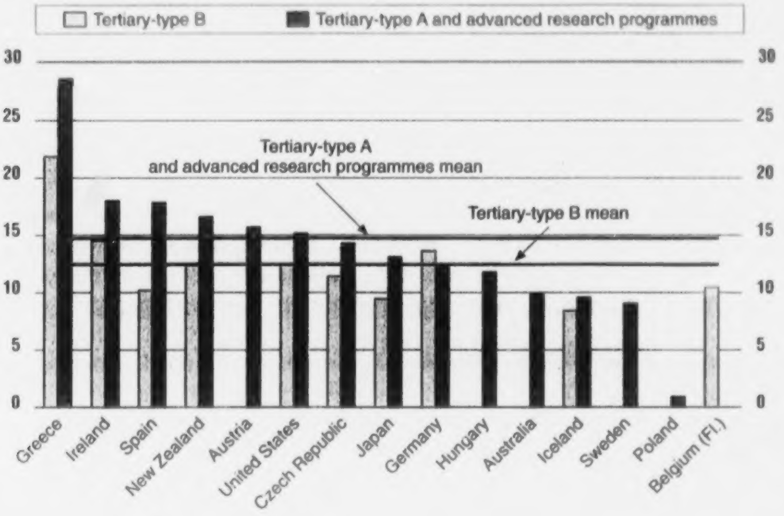
Student/teaching staff ratios in early childhood education tend to be lower than those in primary education, but slightly higher than those in secondary education. Student/teaching staff ratios in early childhood education range from 5.6 in Iceland and New Zealand to 23.2 in Germany. Part of this variation may be due to differences in the organisation of early childhood education between countries. Early childhood education often includes several rather different types of institutions.

There is little apparent relationship between student/teaching staff ratios in early childhood education and those in primary education, suggesting that the staffing requirements or emphases of these two levels differ within countries.

Chart B7.2. **Ratio of students to teaching staff for tertiary education (1997)**

Number of students per teacher in full-time equivalents

With the exception of Germany, the ratio of students to teaching staff is higher in tertiary-type A than in tertiary-type B programmes.



Countries are ranked in descending order of number of students per teacher for tertiary-type A and advanced research programmes.

Source: OECD.

DEFINITIONS

Data refer to the school year 1997/98 and are based on the UOE *data collection on education statistics, administered in 1999 (for details see Annex 3).*

This indicator shows the ratio of students to teaching staff and is obtained by dividing the number of full-time equivalent students at a given level of education by the number of full-time equivalent "teachers" at that same level and in the same type of institution. The classification of educational personnel used is intended to serve as a framework for classifying school personnel for all levels of education. The classification is based on functions and organises staff into four main functional categories. The classification is: *i)* Instructional Personnel; *ii)* Professional Support for Students; *iii)* Management/Quality Control/Administration; *iv)* Maintenance and Operations Personnel. Instructional Personnel is sub-classified in teaching staff, *i.e.* classroom teacher, and teacher aides.

Teaching staff at includes professional personnel involved in direct student instruction. The classification includes: classroom teachers; special education teachers; and other teachers who work with students as a whole class in a classroom, in small groups in a resource room, or one-on-one inside or outside a regular classroom. It includes chairpersons of departments whose duties include some amount of student instruction. It does not include non-professional personnel who support teachers in providing instruction to students, like teachers' aides and other paraprofessional personnel.

Staff reported as "teachers" in early childhood education are generally similar to those reported in primary education.

Table B7.1 **Ratio of students to teaching staff by level of education, calculations based on full-time equivalents (1998)**

	Early childhood education	Primary education	Lower secondary education	Upper secondary education	All secondary education	Tertiary-type B	Tertiary-type A and advanced research prgs.	All tertiary education
OECD countries								
Australia	m	17.9	14.7	16.8	15.5	m	9.9	m
Austria	18.6	12.7	9.3	9.7	9.5	m	15.7	m
Belgium (Fl.)	18.0	14.0	m	m	m	10.5	m	m
Canada	16.2	21.0	21.0	23.1	22.1	m	m	m
Czech Republic	15.9	19.2	18.1	13.0	15.4	11.4	14.3	13.5
Denmark	m	m	m	m	m	m	m	m
Finland	11.9	17.7	11.0	m	m	m	m	m
France	m	m	m	m	m	m	m	m
Germany	23.2	21.6	16.3	13.6	15.5	13.6	12.2	12.4
Greece	15.9	13.6	11.4	11.6	11.5	21.9	28.5	26.3
Hungary	12.1	11.0	11.1	10.5	10.8	m	11.8	11.8
Iceland	5.6	14.1	m	m	m	8.4	9.5	9.3
Ireland	14.7	22.6	x	x	16.3	14.5	18.0	16.6
Italy	m	m	m	m	m	m	m	m
Japan	19.3	21.4	17.3	14.4	15.7	9.5	13.1	11.8
Korea	23.6	31.0	22.5	23.1	22.8	m	m	m
Luxembourg	m	m	m	m	m	m	m	m
Mexico	m	m	m	m	m	m	m	m
Netherlands	x	17.8	m	m	18.5	x	x	18.7
New Zealand	5.6	24.7	25.9	16.8	21.0	12.4	16.6	15.5
Norway	m	12.6	10.1	8.1	m	x	x	13.0
Poland	m	m	m	m	m	m	m	m
Portugal	m	m	m	m	m	m	m	m
Spain	18.3	16.0	x	x	12.1	10.2	17.9	17.2
Sweden	m	13.4	13.2	17.0	15.3	x	9.0	9.0
Switzerland[1]	18.7	16.3	12.1	17.6	14.0	m	m	m
Turkey	m	m	m	m	m	m	m	m
United Kingdom	21.5	22.0	16.7	16.7	16.7	x	x	17.7
United States	18.0	16.5	17.1	14.7	15.9	12.5	15.2	14.6
Country mean	**15.5**	**17.1**	**14.9**	**15.1**	**15.2**	**12.5**	**14.8**	**14.6**
WEI participants								
Argentina[1]	m	24.8	19.0	17.4	x	m	m	m
Brazil[1]	m	27.3	35.2	36.3	x	m	m	m
Chile[1]	m	29.4	29.4	27.8	x	m	m	m
Egypt[1]	m	14.2	21.6	12.6	x	m	m	m
Jordan[1]	m	20.7	20.1	16.9	x	m	m	m
Malaysia[1]	m	21.6	19.7	20.4	x	m	m	m
Paraguay[1]	m	19.6	10.4	10.4	x	m	m	m
Philippines[1]	m	38.4	33.7	33.7	x	m	m	m
Thailand[1]	m	20.9	24.3	26.3	x	m	m	m
Uruguay[1]	m	20.7	14.0	29.8	x	m	m	m
Zimbabwe[1]	m	37.2	22.5	5.5	x	m	m	m

[1] Public institutions only.

Source: OECD Education Database. See Annex 3 for notes.

ACCESS TO EDUCATION, PARTICIPATION AND PROGRESSION

A well-educated population has become a defining characteristic of a modern society. Education is seen as a mechanism for instilling democratic values, as well as a means for developing the productive and social capacity of the individual. Early childhood programmes prepare young children socially and academically for entry into primary education; primary and secondary education provide a foundation of basic skills that prepare young people to become productive members of society; and tertiary education provides a range of opportunities for individuals to gain advanced knowledge and skills, either immediately after initial schooling or later in life. In addition, many employers encourage and even assist workers in upgrading or reorienting their skills in order to meet the demands of changing technologies.

Information on the expected duration of schooling and on enrolment rates at various levels of education provide a picture of the structure of different education systems, as well as of access to educational opportunities in those systems. Trends in enrolments in the various levels of education and types of educational institutions are also indicators of how the supply and demand of educational resources are balanced in different countries.

Virtually all young people in OECD countries have access to basic education of at least eleven years. But patterns of participation in and progression through education over the life cycle vary widely. As shown in **Indicator C1**, both the timing and the rate of participation in the pre-school years and after the end of compulsory education differ considerably across countries. Some countries have extended participation in education for example by making pre-school education almost universal by the age of three, by retaining the majority of young people in education until the end of their teens, or by maintaining 10 to 20 per cent participation among all age-groups up to the late 20s. Education and training beyond formal schooling are also an important component of lifelong learning, embracing individual and social development in a wide variety of institutional settings. Indicator C1 not only provides an overall picture of the formal education system, but also provides an overview of participation in continuing education and training outside the formal education system.

A range of factors, including an increased risk of unemployment and other forms of exclusion of young people with insufficient education, have strengthened the incentive for young people to stay enrolled beyond the end of compulsory schooling and to complete upper secondary education. **Indicator C2** shows also, that upper secondary completion is not only becoming more and more the norm, but that the majority of students completes upper secondary programmes that opens access to further tertiary education. Indicator C2 also presents graduation rates from post-secondary programmes that are at the same content level as upper secondary programmes, one alternative pathway to typically longer tertiary education.

Beyond the secondary level, a number of options exist for further education. One avenue is relatively short, vocationally-oriented programmes at the tertiary level. Another are theory-based programmes which are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements. These are mainly but not exclusively taught at universities. Completion of tertiary education programmes is generally associated with better access to employment (Indicator E2) and higher earnings (Indicator E4).

A series of three indicators present some of the features of tertiary education today. **Indicator C3** presents what proportion of todays young people enters tertiary education and looks at the number of years spent in all forms of tertiary education over the life cycle. It shows that the expected years of study is rising rapidly. **Indicator C4** shows that of those entering university, there is a wide variation across countries in the proportion leaving with a first qualification. It also shows some widely differing characteristics of tertiary provision and of the experience of students in different countries.

One way for students to expand their knowledge of other cultures and societies is to attend institutions of higher education in countries other than their own. International student mobility involves costs and benefits to students and institutions, in both the sending and host countries. While the direct short-term monetary costs and benefits of this mobility are more easily measured, the long-term social and economic benefits to students, institutions and countries are more difficult to quantify. Measures of the number of students studying in other countries, however, provide some idea of the extent of this phenomenon and the degree to which it is changing over time. **Indicator C6** shows the mobility of students between countries.

Students with disabilities, learning difficulties and those from disadvantaged groups often receive additional support in school to enable them to make satisfactory progress. Some continue to be educated in special schools, but increasingly they are included in mainstream education. The orientation of educational policies towards lifelong learning and equity has particular significance for these students since they face the greatest risk of exclusion, not only in schools but also in the labour market and in life generally. Monitoring the educational provision which is made for these students is of great importance especially given the substantial extra resources involved. **Indicator C6** compares the proportion of students which countries consider to have special educational needs. It also presents data on the extent of provision, its location and the distribution of students with special educational needs by gender.

There is ample evidence that more secondary and tertiary education for young people improves their individual economic and social opportunities. There is also growing evidence, albeit less direct, of a payoff for whole societies from increasing the educational attainment of the population. But as rapidly changing technology and globalisation transform the pattern of demand for skilled labour throughout the world, raising the proportion of young people who participate in upper secondary or higher education can only be part of the solution, for a number of reasons:

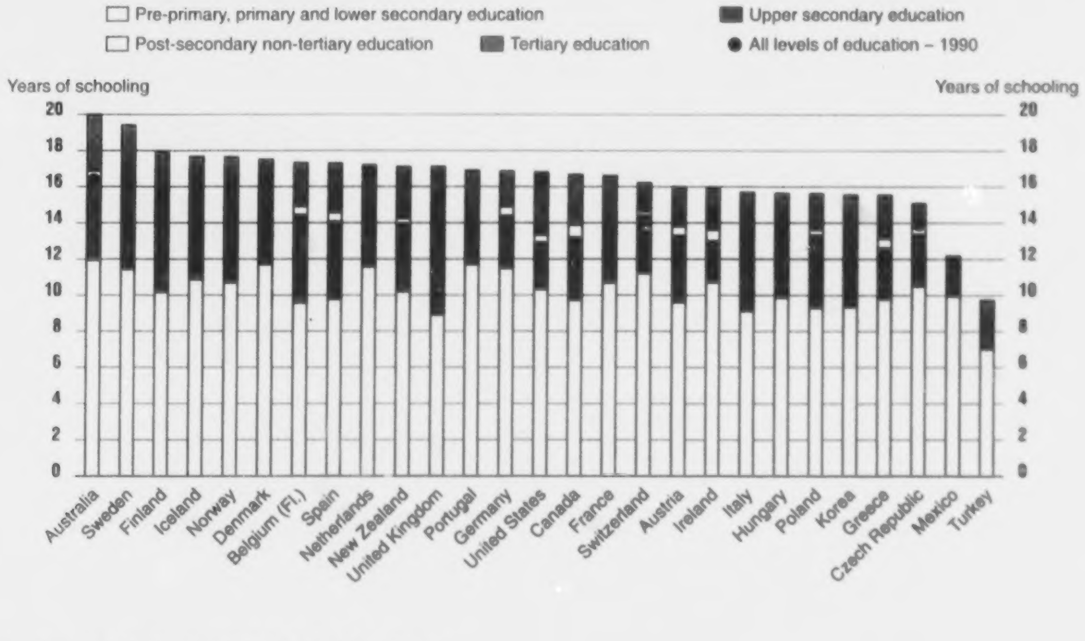
First, an inflow of better-educated young people will only gradually change the overall educational level of the existing workforce.

Secondly, educational attainment is only one component of human capital accumulation. Knowledge and skills continue to be acquired throughout people's lives, through experiences in families, communities and business, as well as within formal educational settings. There is a growing demand in the workplace and elsewhere for individuals who are good at using and interpreting knowledge flexibly, and who can work with others effectively. These abilities can be acquired partly through education, but must also be developed in the settings where they will be used. Strategies for developing lifelong learning opportunities must therefore look beyond mainstream educational institutions, to ensure optimal investment in human capital. **Indicator C7** brings together evidence from the International Adult Literacy Survey which provide some understanding of participation in job-related education and training among employed persons.

OVERALL PARTICIPATION IN EDUCATION

- The 1990s have seen big rises in the rate at which the population participates both in initial and continuing education.
- In OECD countries, the expected length of young people's education rose since 1990, in three out of four countries by more than a year.
- Today, children can expect to enrol for more than 15 years in education; in a third of all OECD countries for even more than 17 years.
- In addition, adults in almost all OECD countries participate for more than one year full-time equivalent in continuing education and training.

Chart C1.1. **Full-time and part-time school expectancy under current conditions (1998)**[1]



1. Education for children under the age of 5 is excluded.
Source: OECD.

POLICY CONTEXT

This indicator examines the volume of enrolment at all levels of education, as well as participation in continuing education and training.

A well-educated population is critical for the current and future economic, intellectual and social development of a country. Societies, therefore, ought to have an interest in providing a wide variety of educational opportunities for both children and adults and in ensuring broad access to learning opportunities. Early childhood programmes prepare children for primary education; primary and secondary education provide a foundation of basic skills that prepares young people to become productive members of society; and tertiary education provides a range of options for individuals to gain advanced knowledge and skills either immediately following school or later in life. Education and training beyond formal schooling are also an important component of lifelong learning, embracing individual and social development in a wide variety of institutional settings.

In most OECD countries, virtually all young people have access to formal education lasting at least 11 years, although patterns of participation in and progression through education over the life cycle vary widely. This indicator presents several different measures of participation in formal education in order to portray the variety of structures observed in different education systems, as well as to examine the level of access to educational opportunities in those systems. Trends in enrolment in the various levels of education are also presented as an indicator of how access to education has expanded in recent years - an important component of the growing pressure on scarce educational resources. For the first time, participation in continuing education and training is examined alongside participation in formal education.

EVIDENCE AND EXPLANATIONS

Overall participation in education

In 25 out of 27 OECD countries, individuals participate in formal education for between 15 and 20 years, on average.

One way of looking at participation in education is to estimate the number of years of full-time and part-time education that a 5-year-old child can expect to enrol in over his or her lifetime, given current enrolment rates. This "school expectancy" is estimated by taking the sum of enrolment rates across each single year of age starting at five (Chart C1.2). Within the OECD, school expectancy varies from 12 years or less in Mexico and Turkey to over 17.5 years in Australia, Denmark, Finland, Iceland, Norway and Sweden.

Most of the variation comes from differences in enrolment rates in upper secondary education.

Most of the variation between countries in school expectancy comes from differences in enrolment rates in upper secondary education. Although the relative differences in participation are also large at the tertiary level, they apply to a smaller proportion of the cohort and thus have less of an effect on school expectancy.

While measures of the average duration of schooling, such as "school expectancy", are influenced by participation rates over the life cycle, they will underestimate the actual years of schooling for children in systems where access to education is expanding. This measure also does not distinguish between full-time and part-time participation, which means that countries with relatively large proportions of part-time enrolments will tend to have relatively high values. In Australia, the Flemish Community of Belgium, New Zealand, Sweden, the United Kingdom and the United States, participation in part-time

Chart C1.2. Net enrolment rates by single year of age and level of education (head counts, 1998)

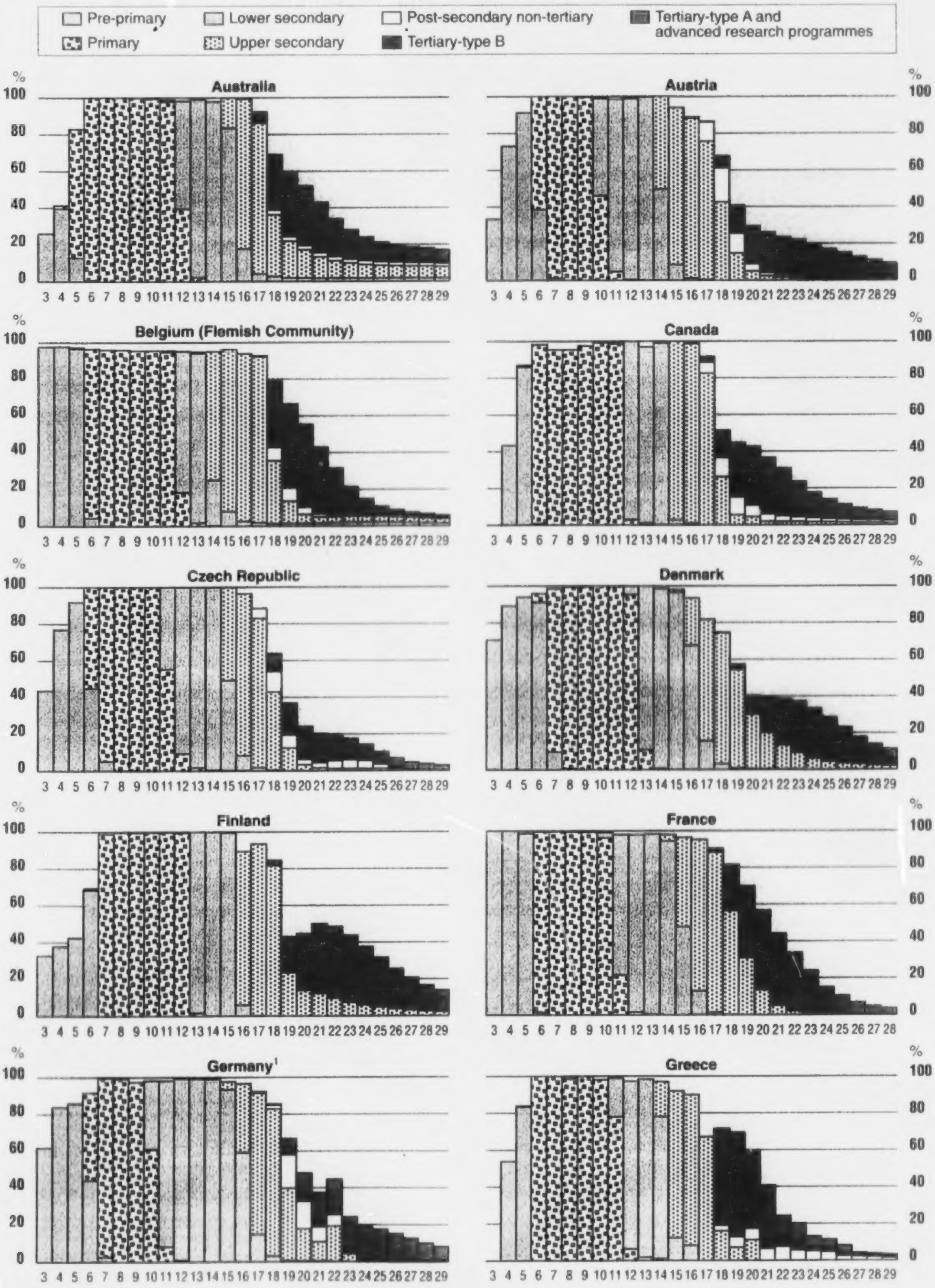


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Chart C1.2. **Net enrolment rates by single year of age and level of education (head counts, 1998)** *(cont.)*

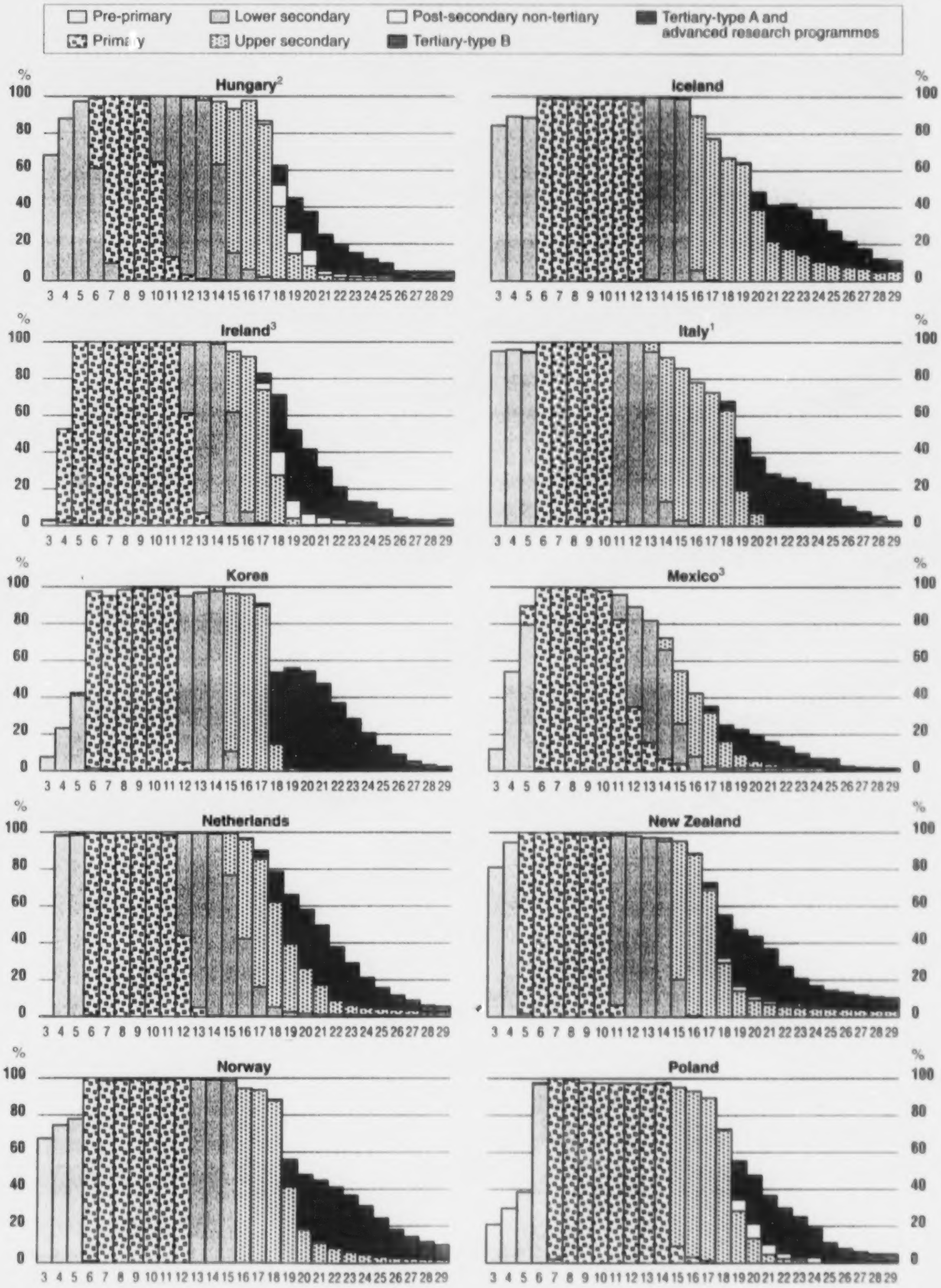
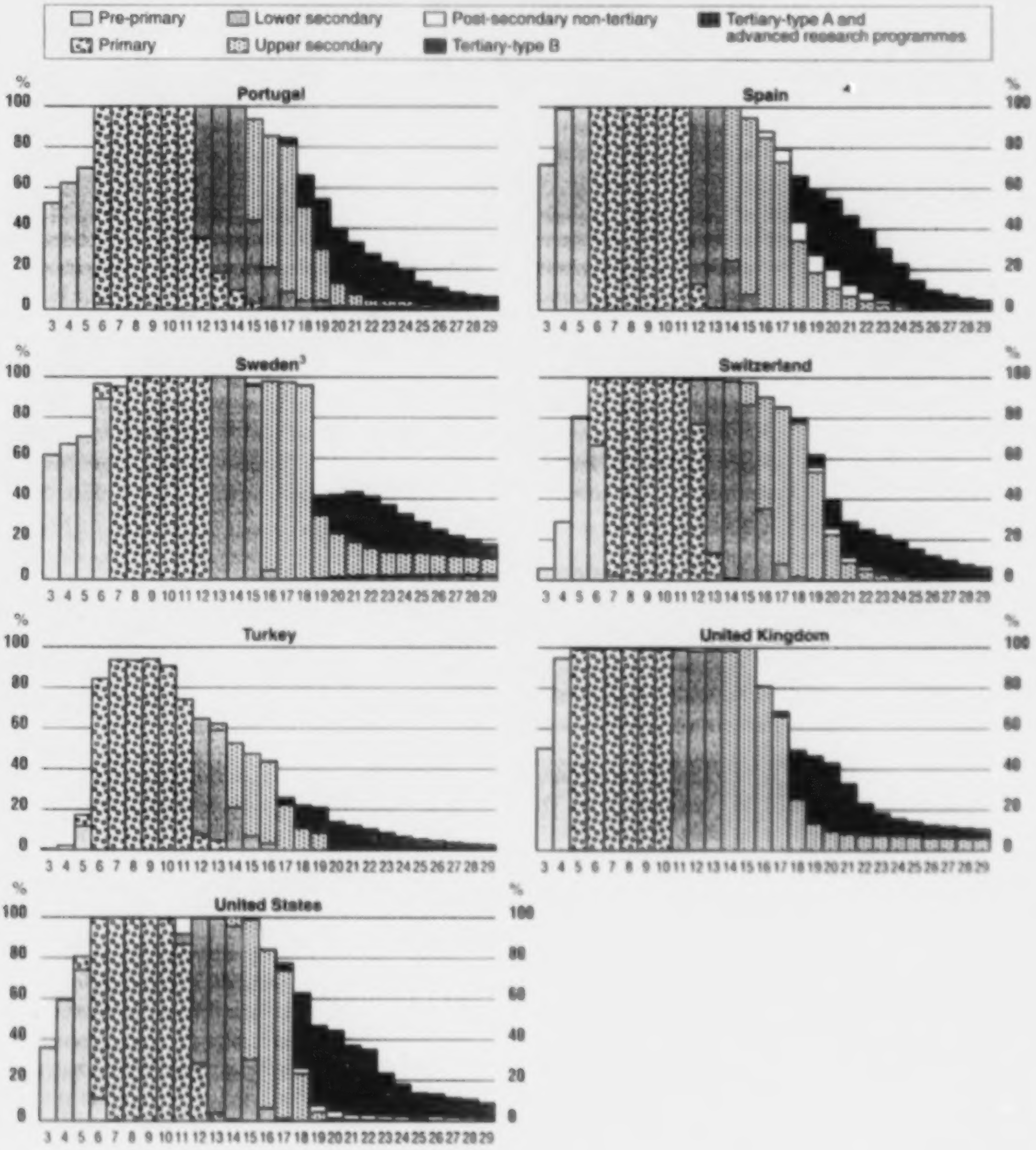


Chart C1.2. Net enrolment rates by single year of age and level of education (head counts, 1998) *(cont.)*



1. Italy and Germany: Data are missing for advanced research programmes.
2. Hungary: Data are missing for tertiary-type B programmes.
3. Ireland, Sweden and Mexico: Tertiary-type A and advanced research programmes include data for tertiary-type B programmes.

Source: OECD.

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education account for 1.8 or more years of school expectancy. For the countries in which the school expectancy at a certain level of education exceeds the number of grades at that level, the effect of repetition, or as in the case of Australia, the number of adults enrolling in those programmes, has a greater impact on school expectancy than the proportion leaving school before the level of education is completed.

Long school expectancy does not necessarily imply that all young persons have access to higher levels of education…

Enrolment rates are influenced both by entry rates to a particular level of education and by the typical duration of studies. A high level of school expectancy therefore does not necessarily imply that all young persons will participate in education for a long period of time. For example, the school expectancy for persons aged 5 is 15 years in Portugal and United States and 17 years in Canada and Germany, but enrolment rates are over 90 per cent for only 10 years of education in Portugal and the United States and for 12 years in Canada and Germany (Chart C1.2 and Table C1.2).

… but in most OECD countries, virtually all young people participate in at least 11 years of formal education.

In most OECD countries, virtually all young people have access to formal education lasting at least 11 years. The age band in which at least 90 per cent of students are enrolled spans 13 or more years in the Flemish Community of Belgium, France, Japan, the Netherlands and Sweden. Mexico and Turkey, by contrast, have enrolment rates exceeding 90 per cent for a period of six years or less.

Trends in participation in education

School expectancy increased by more than one year between 1990 and 1998 in 13 out of 18 OECD countries.

School expectancy increased between 1990 and 1998 in all OECD countries for which comparable trend data are available. In 13 out of 18 countries, the increase exceeded one year. In Australia, Finland, New Zealand and Portugal individuals can expect to stay on average more than two years longer in school than they could in 1990 (Table C1.1).

In almost all countries, the greatest increase in enrolment rates occurred at the tertiary level (Table C3.4). Nevertheless, increasing participation in secondary education, particularly at upper secondary level, contributed substantially to the increase in some countries.

Participation in early childhood education

Enrolment rates of 3 to 4 year-olds range from less than 25 per cent in ten countries to over 75 per cent in the Flemish Community of Belgium, France and Iceland.

In the majority of OECD countries, universal enrolment, *i.e.* enrolment rates exceeding 90 per cent, starts between the ages of 5 and 6 years, although in the Flemish Community of Belgium, France, Italy, Japan, the Netherlands, New Zealand, Spain and the United Kingdom virtually all 3 to 4 year-olds are already enrolled in either pre-primary or primary programmes (Table C1.2). Enrolment rates of 3 to 4-year-olds range from less than 15 per cent in Canada, Korea, Turkey and Switzerland to over 75 per cent in the Flemish Community of Belgium, France and Iceland.

Participation towards the end of compulsory schooling and beyond

A number of factors, including an increased risk of unemployment and other forms of exclusion for young people with insufficient education, influence the decision to stay enrolled beyond the end of compulsory schooling. In many countries, the transition from education to employment has become a longer and more complex process, providing the opportunity, or the necessity, for students to combine learning and work in order to develop marketable skills (see Chapter E).

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Compulsory schooling ends in OECD countries between the ages of 14 and 18, in most countries at age 15 or 16.

Compulsory schooling ends in OECD countries between the ages of 14 (Italy, Korea, Portugal and Turkey) and 18 (Flemish Community of Belgium, Germany and the Netherlands), with the most common ages being either 15 or 16 year (Table C1.2). The age until which students are required by law and regulation to be enrolled in school is not always an age at which enrolment is universal. While participation rates are high in most countries until the end of compulsory schooling, they drop below 90 per cent before the age at which students are no longer legally required to be enrolled in school in Mexico, Netherlands, Turkey and the United States. In the Netherlands and the United States this is due to the comparatively high age at which compulsory schooling ends (age 17 for the United States and age 18 for the Netherlands). By contrast, 14 OECD countries succeed in retaining virtually all children in school beyond the age at which compulsory schooling ends (Table C1.2). In Sweden more than 95 per cent of all 17-year-olds are still enrolled (Table C1.3).

The sharpest decline in participation occurs not at the end of compulsory schooling…

In half of the OECD countries, enrolment in education remains close to universal beyond the end of compulsory schooling, particularly in countries where the age at which compulsory schooling ends is relatively low. There is no close correspondence between the end of compulsory schooling and the decline in enrolment rates. After the age of 16, however, enrolment rates begin to decline in all OECD countries except Finland. On average across OECD countries, the enrolment rate is 81 per cent at the age of 17, 67 per cent at the age of 18, and 52 per cent at the age of 19. Only seven countries have a participation rate of 50 per cent or above at the age of 20 (Table C1.3).

… but at the end of upper secondary education.

In 24 out of 27 OECD countries the sharpest decline in enrolment rates occurs at the end of upper secondary education. In Sweden, participation rates fall from 95 to 41 per cent after the age of 18, the typical age at which upper secondary programmes end. In Canada, Finland, Korea and Norway, participation rates decline by 30 percentage points or more after upper secondary education ends. In other countries the decline after either compulsory schooling or upper-secondary schooling is less pronounced: in the Flemish Community of Belgium, France, Iceland, the Netherlands and Spain the decline from one year to the next never exceeds 14 percentage points (Table C1.3).

Although the proportion of young people remaining in school until the age of 17 or 18 exceeds 80 or 90 per cent in some countries where compulsory schooling ends at the age of 16, the data in Table C1.3 show that education systems with a higher age of compulsory education tend to succeed in keeping more young people at school until the end of upper secondary education.

In Australia and the Nordic countries one out of four 20 to 29-year-olds participates in education.

Although in most countries there is a gradual decline in enrolment rates starting in the last years of upper secondary education, there are several notable exceptions. Some countries continue to maintain relatively high enrolment rates until the age of 20 to 29. In the Nordic countries, enrolment rates for 20 to 29-year-olds still exceed 25 per cent (Table C1.2).

The transition to post-secondary education

Both graduates from upper secondary programmes who decide not to enter the labour market directly and persons who are already working and want to upgrade their skills, can choose between a wide range of post-secondary programmes. Across the OECD, tertiary programmes vary in the extent to which they are theory-based and designed to prepare students to enter advanced research programmes or professions with high skill requirements (tertiary-type A), or tend to focus on occupationally-specific skills intended for direct labour market entry (tertiary-type B). While the institutional location of programmes used to give a relatively clear idea of their nature (*e.g.*, universities versus non-university status), these distinctions have become blurred.

Upper secondary completers in a number of systems also have the option of taking relatively short programmes (less than two years) to prepare them to enter trades or specific vocational fields. While these programmes are offered as advanced or second cycle upper secondary programmes in some countries (*e.g.* Austria, Germany and Spain), they are offered in the post-secondary sector in others (*e.g.*, Canada and the United States). From an internationally comparative point of view, these programmes straddle the boundary between upper secondary and tertiary education. In 22 out of 27 countries programmes of this nature are offered to upper secondary completers. In Austria, Canada, the Czech Republic, Germany, Hungary, Ireland and Spain over 9 per cent of 18 and 19 year-olds are enrolled in such post-secondary non-tertiary programmes (ISCED 4).

The transition from secondary education to post-secondary education occurs at different ages in different countries (Charts C1.2 and C1.3). At the age of 17 secondary students still form more than 90 per cent of the total enrolment in all but three countries: only in Austria, Ireland and Turkey do we see more than 10 per cent of enrolment at the age of 17 at the post-secondary level.

By the age of 19, the majority of students in more than half of the OECD countries are enrolled at the post-secondary level.

By the age of 19, the majority of students in more than half of the OECD countries are in post-secondary education and by the age of 20, only in Denmark, Iceland, Sweden and Switzerland are more students still in secondary than in post-secondary education (Table C1.3). In many countries, the transition to tertiary-level education continues up to the age of 25 and over (Table C1.2).

Participation in tertiary education

On average in OECD countries, a 17-year-old can expect to attend 2.3 years of tertiary education.

On average in OECD countries, a 17-year-old can expect to attend 2.3 years of tertiary education over his or her lifetime. Both tertiary entry rates and the typical duration of study affect the expectancy of tertiary education. In Australia, Finland, Korea and the United States this value exceeds three years. In the Czech Republic, Hungary, Mexico, Turkey and Switzerland, by contrast, the expectancy of tertiary education is 1.6 years or less (see Table C1.1 and Indicators C3 and C4).

Policies of expanding youth education have, in many countries, increased pressure for greater access to tertiary education.

Policies of expanding youth education policies have, in many countries, increased pressure for greater access to tertiary education. Thus far, this pressure has more than compensated for declines in cohort sizes which until recently led to predictions of stable or declining demand from school leavers in several countries, including Australia and Japan. In some countries, there are now signs of a levelling off in the demand for tertiary education, but the overall trend remains upward.

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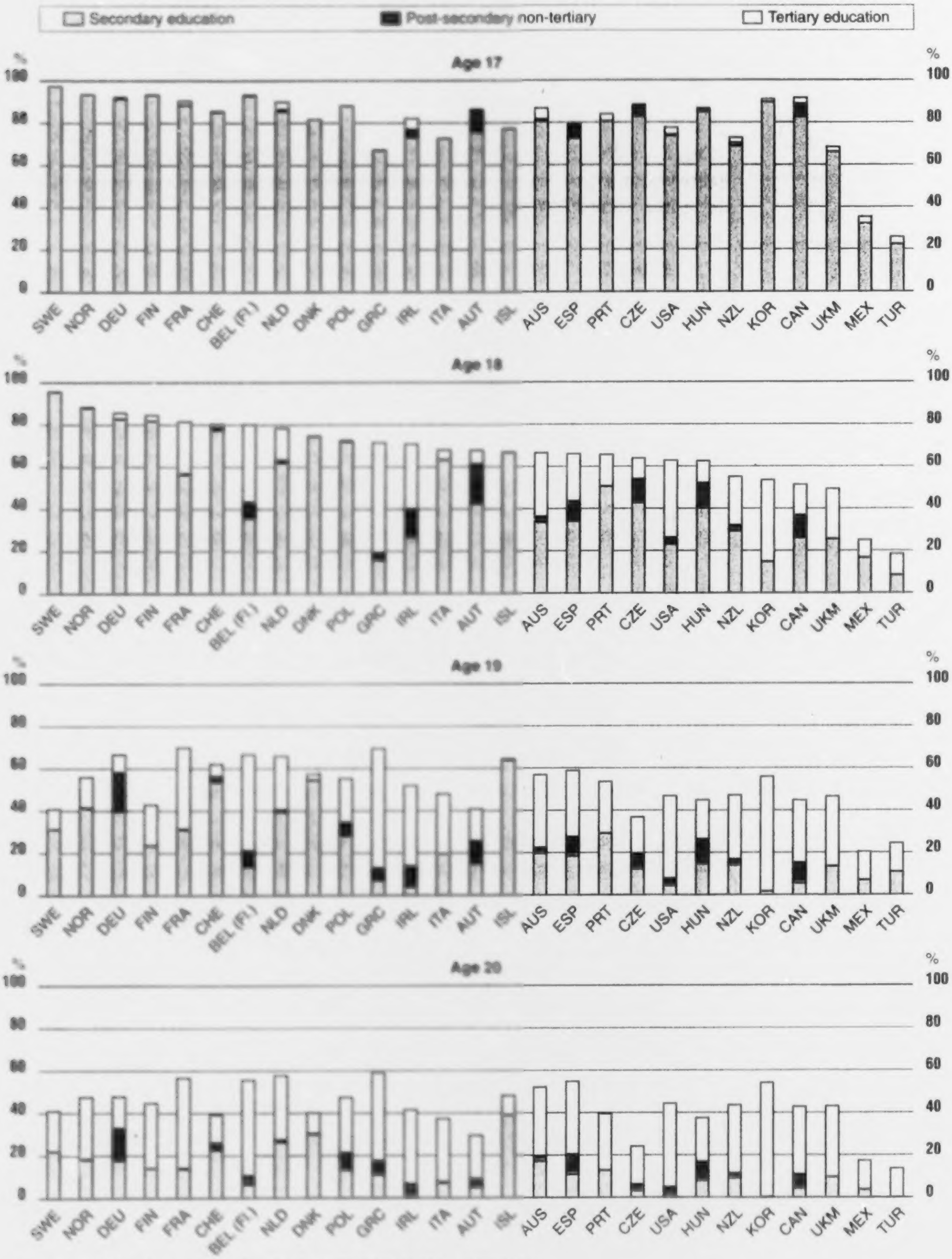
Chart C1.3. **Transition characteristics at each year of age from 17 to 20: Net enrolment by level of education, based on head counts (1998)**



Countries are ranked in descending order of net enrolment rates at 18 years of age.

Source: OECD.

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Participation in continuing education and training

Increasing demand for skills can be addressed only partly by changes in the formal educational system.

There is growing recognition across OECD countries of the importance of investment in human capital through lifelong learning. Increasing demand in the workplace for individuals who are good at using and interpreting knowledge flexibly can only be partially addressed through curricular changes in schools and universities, as changes initiated in the formal education system today will take several generations to have an impact on the population at large. Continuing education and training, outside formal education, also allows individuals an opportunity to repair and/or complement previously received education and training.

Table C1.4 shows the participation rates in continuing education and training. More than a third of all persons aged 25 to 44 participate in some continuing education and training (not leading to a formal educational qualification) in seven out of ten countries for which comparable data are available. The number of hours of training in which persons aged 20 can expect to participate over their lifetime is substantial. It ranges from around 1 000 hours of continuing education and training in the Flemish Community of Belgium and Poland to over 2 000 in the Netherlands. Using course intensity/duration benchmarks of around 30 hours per week and 40 weeks per year for "equivalent" full-time participation, these data imply that adults in the OECD countries covered can expect to participate an equivalent of between 0.85 and 1.7 years of full-time training respectively between the ages of 20 and 65 (see Table C1.4).

Participation by gender

In most OECD *countries, gender differences in enrolment rates are small.*

In the majority of OECD countries, women can expect to receive more years of education than men - an additional 0.4 years, on average. Variation between countries in school expectancy is generally greater for women than for men. Gender differences in favour of women are wider in countries with high school expectancy. On the other hand, school expectancy tends to be shorter for women than men in countries that have overall shorter school expectancy. Some countries show sizeable gender differences. In Korea, Turkey and Switzerland men can expect to stay between 0.9 to 2 years longer in education than women, whereas in Finland, New Zealand, Sweden, the United Kingdom and the United States the expected duration of enrolment for women exceeds that of men by more than a year (Table C1.1). These differences are driven primarily by gender differences in enrolment rates at the upper secondary level. There is almost no gender gap in enrolment at primary and lower secondary education levels in OECD countries. The gender gap in school expectancy in Korea is mainly determined by differences in enrolment rates at the tertiary level (Indicator C3). The fields of study pursued by women tend, however, to differ from those pursued by men (see Indicator C4).

There is no overall measurable gender difference in the number of hours of training undertaken.

Participation rates in continuing education and training are generally similar for men and women in the ten countries for which data are available. None of the gender gaps that can be observed are statistically significant, with one exception: men are more likely than women to participate among 25 to 34-year-olds in New Zealand (the gap being 13 per cent) (Table C1.4).

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DEFINITIONS

Data refer to 1997/98 and are based on the UOE data collection on education statistics and the 1999 World Education Indicators Pilot Project.

Except where otherwise noted, figures are based on head counts, that is, they do not distinguish between full-time and part-time study. A standardised distinction between full-time and part-time participants is very difficult, as a number of countries do not recognise the concept of part-time study, although in practice at least some of their students would be classified as part-time by other countries. Note that for some countries, part-time education is not completely covered by the reported data.

The average duration of formal education that a 5-year-old child can expect to enrol in over his or her lifetime, referred to as "school expectancy" in this indicator, is calculated by adding the net enrolment percentages for each single year of age from the age of 5 onwards. The average duration of schooling for the cohort will reflect any tendency to lengthen (or shorten) studies in subsequent years. Caution is required when data on school expectancy are compared. Neither the length of the school year nor the quality of education is necessarily the same in each country.

Net enrolment rates expressed as percentages in Table C1.2 are calculated by dividing the number of students of a particular age group enrolled in all levels of education by the number of persons in the population in that age group. Table C1.3 presents net enrolment rates by single year of age for 15 to 20-year-olds at each level of education.

Table C1.1 shows the school expectancy for the academic year 1989/90. The data on enrolment for 1989/90 were obtained through a special survey in 1997.

Data on continuing education and training are from the International Adult Literacy Survey (IALS).

In most countries the achieved national samples in the International Adult Literacy Survey (IALS) that was conducted in 1994/95 by OECD and Statistics Canada amounted to between 2 000 and 4 500 respondents. These sample sizes are relatively small for nationally representative surveys, and this necessarily limits the extent to which it is possible to analyse sub-groups within the population without encountering cell sizes that are too small to allow reasonable extrapolation to the general population. Each of the statistical comparisons made in this section has been tested for statistical significance. Standard errors for each of the tables are provided in parenthesis.

IALS was undertaken by Statistics Canada and the OECD at the end of 1994 and in 1995.

The IALS background questionnaire records any participation in education or training during the 12 months preceding the survey. The Canadian survey, for example, asks: "During the past 12 months, that is since August 1993, did you receive any training or education including courses, private lessons, correspondence courses, workshops, on-the-job training, apprenticeship training, arts, crafts, recreation courses or any other training or education?" This is a very broad definition of education and training, covering a rather wider range of training types than in other surveys. For the purpose of this indicator it is necessary to distinguish between formal education as included in school expectancy (Table C1.1) and continuing education and training of persons who have left the education system. The training of persons who indicated that they had participated in any education leading to formal qualifications is excluded, since they are probably included in the counts in Table C1.1.

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Table C1.1. **School expectancy (in years) under current conditions**[1]

	1998									1990
	Full-time and part-time							Full-time	Part-time	Full-time and part-time
	All levels of education combined			Primary and lower secondary education	Upper secondary education	Post-secondary non-tertiary	Tertiary education	All levels of education combined	All levels of education combined	All levels of education combined
	M+W	Men	Women	M+W				M+W		M+W
OECD countries										
Australia	20.0	m	m	11.4	4.3	0.6	3.1	14.2	5.8	16.4
Austria	16.0	16.2	15.9	8.2	3.7	0.5	2.2	15.8	0.2	14.3
Belgium (Fl.)	17.3	17.0	17.7	8.6	4.8	0.5	2.4	15.4	1.9	m
Canada	16.7	16.4	16.9	8.9	3.5	0.7	2.8	15.4	1.3	16.5
Czech Republic	15.1	15.0	15.1	9.1	2.9	0.5	1.3	14.9	0.2	13.9
Denmark	17.5	17.1	17.9	9.8	3.3	0.1	2.4	17.5	n	16.1
Finland	17.9	17.3	18.6	9.1	4.0	n	3.8	17.9	n	15.5
France	16.6	16.4	16.8	9.5	3.3	n	2.6	16.6	n	m
Germany	16.8	17.0	16.7	10.1	2.9	0.5	2.0	16.8	0.1	m
Greece	15.5	15.4	15.6	9.0	2.8	0.5	2.4	15.4	0.2	m
Hungary	15.6	15.4	15.8	8.2	3.7	0.5	1.6	14.4	1.2	13.8
Iceland	17.7	17.3	18.1	10.0	4.8	0.1	2.0	16.6	1.0	16.0
Ireland	15.9	15.5	16.2	10.7	2.3	0.6	2.3	15.1	0.8	14.5
Italy	15.7	15.5	15.9	8.2	4.2	n	2.3	15.5	0.1	m
Japan	m	m	m	9.1	3.0	m	m	m	m	m
Korea	15.5	16.4	14.7	8.9	2.9	a	3.3	15.5	n	m
Luxembourg	m	m	m	m	3.2	m	m	m	m	m
Mexico	12.2	12.2	12.0	9.1	1.3	a	0.9	12.2	n	11.8
Netherlands	17.2	17.4	17.0	10.6	3.3	0.1	2.2	16.4	0.8	16.7
New Zealand	17.1	16.5	17.7	10.2	3.8	0.3	2.9	15.3	1.8	14.8
Norway	17.7	17.2	18.1	9.9	3.9	0.1	3.0	16.9	0.8	16.0
Poland	15.6	15.3	15.9	8.0	4.0	0.3	2.0	14.0	1.6	m
Portugal	16.9	16.6	17.2	11.0	3.0	a	2.2	16.9	n	13.7
Spain	17.3	16.9	17.7	8.8	4.3	0.5	2.7	16.7	0.6	15.4
Sweden	19.4	18.1	20.8	9.8	5.5	m	2.4	16.6	2.8	m
Switzerland	16.2	16.7	15.8	9.6	3.2	0.2	1.6	15.9	0.3	15.3
Turkey	9.7	10.7	8.7	6.9	1.6	a	1.2	9.7	n	m
United Kingdom	17.1	16.4	17.8	8.9	5.7	x	2.5	14.2	2.9	15.4
United States	16.8	16.1	17.5	9.5	2.6	0.4	3.5	14.9	1.9	16.3
Country mean	**16.4**	**16.1**	**16.5**	**9.3**	**3.5**	**0.3**	**2.3**	**15.4**	**1.3**	**15.1**
WEI participants										
Argentina	15.4	14.8	16.0	10.2	1.7	a	2.4	13.6	1.8	m
Brazil	14.8	14.6	15.0	10.5	2.2	a	0.7	14.8	n	11.8
Chile	14.2	m	m	8.3	3.3	a	1.5	14.2	n	13.1
China	10.1	m	m	8.5	1.2	0.1	0.3	2.1	8.0	m
Egypt	m	m	m	7.7	2.0	m	m	m	m	m
Indonesia	9.6	9.8	9.3	7.6	1.0	n	0.6	m	m	m
Jordan	11.6	m	m	9.0	1.4	a	1.0	m	m	m
Malaysia	12.1	11.9	12.3	8.4	1.6	0.1	0.8	12.0	0.1	10.7
Paraguay	11.2	11.1	11.2	9.0	1.1	a	0.4	11.2	n	m
Philippines	12.3	11.9	12.6	9.5	0.7	0.2	1.6	12.0	0.3	m
Thailand	m	m	m	9.0	3.0	m	1.5	m	m	m
Uruguay	14.9	14.0	15.7	9.9	2.2	a	1.7	14.9	n	m
Zimbabwe	9.6	10.2	9.2	8.9	0.7	a	n	9.6	n	m

[1] Education for children under the age of five is excluded.

Source: OECD Education Database. See Annex 3 for notes.

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Table C1.2 **Enrolment rates by age, full-time and part-time students (1998)**

	Ending age of compulsory education	Number of years at which over 90% of the population are enrolled	Age range at which over 90% of the population are enrolled	Students aged					
				4 and under as a percentage of the population aged 3-4	5-14 as a percentage of the population aged 5-14	15-19 as a percentage of the population aged 15-19	20-29 as a percentage of the population aged 20-29	30-39 as a percentage of the population aged 30-39	40 and over as a percentage of the population aged 40 and over
OECD countries									
Australia	15	11	6-16	22.4	97.8	81.6	27.1	14.5	6.0
Austria	15	11	5-15	36.0	98.9	76.2	17.4	3.4	0.3
Belgium (Fl.)	18	15	3-17	82.4	96.2	86.1	19.5	4.3	1.7
Canada	16	12	6-17	14.6	97.0	78.0	19.8	4.4	1.1
Czech Republic	15	12	5-16	41.3	99.2	74.9	13.2	0.8	n
Denmark	16	12	5-16	53.1	98.4	80.1	27.9	5.5	0.7
Finland	16	10	7-17	23.5	90.6	82.1	33.1	7.6	1.3
France	16	15	3-17	78.9	99.9	87.8	19.1	1.9	x
Germany	18	12	6-17	49.2	97.5	88.3	21.7	3.0	0.2
Greece	14.5	10	6-15	17.9	97.8	77.6	18.4	n	n
Hungary	16	12	5-16	52.1	99.8	75.4	14.8	2.5	n
Iceland	16	10	6-15	77.4	98.0	79.7	29.5	6.0	1.5
Ireland	15	12	5-16	18.8	99.8	80.7	15.5	2.2	x
Italy	14	12	3-14	63.7	99.1	69.8	16.8	1.7	0.1
Japan	15	14	4-17	49.7	101.0	m	m	m	m
Korea	14	12	6-17	10.3	92.1	78.6	20.9	1.1	0.2
Luxembourg	15	m	m	m	m	m	m	m	m
Mexico	15	6	6-11	22.1	93.2	38.5	8.3	1.7	0.6
Netherlands	18	14	4-17	32.8	99.3	86.0	22.0	3.5	1.4
New Zealand	16	12	4-15	58.6	99.7	71.7	20.3	8.4	2.7
Norway	16	12	6-17	47.3	96.9	86.4	26.5	5.2	1.1
Poland	15	11	6-16	17.5	93.2	81.4	20.6	2.2	x
Portugal	14	10	6-15	38.3	106.4	76.2	19.3	3.4	0.6
Spain	16	12	4-15	63.4	104.4	76.5	23.7	2.6	0.3
Sweden	16	13	6-18	42.8	96.5	86.1	30.4	13.3	2.7
Switzerland	15	11	6-16	12.7	98.0	84.1	17.6	3.1	0.1
Turkey	14	4	7-10	0.8	72.5	31.9	7.2	1.5	0.2
United Kingdom	16	12	4-15	50.6	98.9	69.5	18.1	8.8	3.2
United States	17	10	6-15	31.8	99.8	74.2	21.4	5.6	1.6
Country mean	**16**	11	–	**39.6**	**97.2**	**76.3**	**20.4**	4.4	1.2
WEI participants									
Argentina	14	9	5-13	22.1	102.1	59.4	19.5	4.4	0.8
Brazil	14	7	8-14	14.0	89.6	71.4	17.4	4.5	1.2
Chile	14	9	6-15	11.8	91.4	m	m	m	m
China	14	m	m	m	m	m	m	m	m
Egypt	13	5	6-10	m	83.3	m	m	m	m
India	14	m	m	m	m	m	m	m	m
Indonesia	15	2	7-12	1.9	74.3	37.0	3.3	n	n
Israel	14	13	4-16	73.4	96.3	62.9	19.3	4.2	0.9
Jordan	15	2	7-8	9.5	83.5	m	m	m	m
Malaysia	16	7	6-12	2.5	95.3	38.2	4.9	0.3	n
Paraguay	14	5	7-11	3.7	84.4	36.6	2.3	0.1	n
Philippines	12	6	7-17	n	83.4	72.2	3.5	n	n
Russian Federation	15	m	m	m	m	m	m	m	m
Sri Lanka	14	m	m	m	m	m	m	m	m
Thailand	14	2	5-6	35.7	86.3	51.8	2.3	n	n
Uruguay	15	8	6-13	14.2	98.6	54.0	16.7	3.2	0.4
Zimbabwe	15	3	8-11	n	75.2	38.4	0.6	n	n

Source: OECD Education Database. See Annex 3 for notes.

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Table C1.3. Transition characteristics at each year of age from 15 to 20: net enrolment rates by level of education

Based on head counts (1998)

	Graduation age at the upper secondary level of education	Age 15	Age 16			Age 17			Age 18			Age 19			Age 20		
		Secondary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education	Secondary education	Post-secondary non-tertiary	Tertiary education
OECD countries																	
Australia	19	99	97	n	n	81	1	5	34	3	30	20	3	35	17	2	32
Austria	17-19	94	88	n	n	75	11	n	43	19	6	15	11	15	5	4	20
Belgium (Fl.)	18-19	97	94	n	n	93	n	1	36	7	37	14	7	46	6	4	45
Canada	18	103	99	n	n	83	6	3	26	11	15	5	10	29	4	6	32
Czech Republic	18-19	100	96	n	n	83	5	n	43	11	10	12	7	17	3	3	18
Denmark	19-20	98	93	n	n	82	n	n	74	n	n	54	n	3	30	n	10
Finland	19	100	89	n	n	93	n	n	82	n	3	24	n	19	14	n	31
France	18-20	96	95	n	n	88	n	2	56	n	25	31	n	38	14	n	43
Germany	19	98	96	n	n	91	n	1	83	n	3	40	18	8	18	15	15
Greece	18	92	90	n	n	67	n	n	16	3	52	7	6	57	11	6	42
Hungary	16-18	93	97	n	n	85	2	n	40	12	10	15	12	19	8	9	21
Iceland	20	100	89	n	n	77	n	n	67	n	n	64	n	1	39	n	9
Ireland	17-18	97	91	1	n	73	4	5	27	13	31	4	10	38	n	6	35
Italy	17-19	86	78	n	n	73	n	n	63	n	5	20	n	28	7	n	30
Japan	18	99	96	a	a	94	a	n	m	m	m	m	m	m	m	m	m
Korea	18	96	96	a	n	90	a	1	15	a	39	2	a	54	n	a	54
Luxembourg	18-19	88	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Mexico	18	51	42	a	a	32	a	3	17	a	8	7	a	13	4	a	14
Netherlands	18-19	99	96	1	n	85	1	3	62	1	15	39	1	25	26	1	30
New Zealand	18	95	88	n	n	69	1	2	29	3	23	14	3	30	9	2	32
Norway	19	100	94	n	n	93	n	n	88	n	n	41	n	14	18	1	29
Poland	18-20	86	90	n	n	88	n	n	72	n	n	28	6	21	13	8	26
Portugal	18	90	84	a	n	81	a	3	51	a	15	29	a	24	13	a	27
Spain	16-18	94	85	3	n	73	6	n	34	10	22	18	9	31	11	9	34
Sweden	19	97	98	m	n	97	m	n	95	m	n	31	m	10	22	m	19
Switzerland	18-20	98	90	n	n	85	n	n	78	1	1	54	3	6	23	3	13
Turkey	17	47	43	a	n	22	a	3	8	a	10	11	a	14	a	a	14
United Kingdom	16-18	101	81	x	n	66	x	2	25	x	24	14	x	33	10	x	33
United States	18	99	84	n	n	74	n	3	23	3	37	4	3	39	1	3	40
Country mean	**18**	**93**	**88**	**n**	**n**	**78**	**1**	**1**	**48**	**4**	**16**	**23**	**4**	**25**	**12**	**3**	**28**
WEI participants																	
Argentina	18	72	64	a	n	54	a	3	27	a	19	20	a	26	x	a	25
Brazil	17-18	71	68	a	n	61	a	1	53	a	4	42	a	6	26	a	7
Chile	18	88	84	a	n	74	a	m	m	a	m	m	a	m	m	a	m
China	18	46	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Indonesia	18	44	36	n	n	33	n	n	28	n	14	11	n	19	4	n	18
Israel	17	98	95	a	n	89	n	n	17	1	2	3	1	4	1	1	8
Jordan	17	76	69	a	n	54	a	n	17	a	34	5	a	x	n	a	x
Malaysia	19	68	62	n	n	16	2	n	10	1	12	3	2	11	n	1	18
Paraguay	17	49	48	a	n	39	a	n	24	a	1	9	a	2	5	a	2
Philippines	17	73	70	n	n	35	10	55	17	4	41	6	3	29	1	n	24
Russian Federation	18	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Thailand	17	73	56	m	n	41	m	n	23	m	35	4	m	26	n	m	12
Uruguay	17	70	62	a	a	52	a	3	35	a	13	22	a	13	15	a	10
Zimbabwe	19	42	42	a	n	39	a	n	23	a	n	11	a	x	2	a	x

Source OECD Education Database. See Annex 3 for notes

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Table C1.4 Expected hours of training over the life cycle. Percentage of 25 to 64-year-olds participating in continuing education and training and average number of hours of participation in the previous year, by intensity of training, gender and age-group (1994-1995)

		Expected hours of training outside formal education	Participation rate, by age group					Mean number of hours per year per participant, by age group				
			25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-64	25-64
Belgium (Flanders)	M + W	1 020 (92.9)	23 (2.0)	20 (1.4)	21 (2.0)	12 (2.0)	20 (19.6)	110 (17.1)	114 (14.7)	87 (16.5)	m (m)	103 (9.3)
	Women	924 (146.5)	22 (2.7)	17 (2.4)	17 (2.2)	m (m)	17 (1.2)	72 (16.6)	109 (29.1)	m (m)	m (m)	91 (13.8)
	Men	1 069 (116.6)	24 (3.1)	23 (2.2)	24 (3.1)	m (m)	23 (1.5)	141 (29.2)	118 (15.2)	76 (28.7)	m (m)	114 (12.8)
Canada	M + W	m (m)	32 (3.1)	37 (3.0)	28 (5.2)	12 (3.9)	30 (30.0)	104 (13.8)	93 (15.1)	102 (8.7)	75 (97.4)	97 (5.3)
	Women	m (m)	29 (4.5)	38 (5.4)	30 (11.3)	14 (8.6)	30 (3.5)	112 (28.3)	98 (20.2)	87 (15.2)	102 (123.5)	101 (15.2)
	Men	m (m)	35 (5.7)	37 (4.7)	27 (6.6)	m (m)	30 (2.2)	96 (21.2)	86 (23.9)	117 (22.3)	m (m)	94 (11.5)
Ireland	M + W	1 219 (171.5)	21 (2.1)	21 (2.5)	17 (3.7)	m (m)	18 (18.0)	172 (24.3)	152 (35.9)	125 (33.2)	m (m)	147 (12.8)
	Women	1 299 (282.0)	22 (2.4)	26 (2.6)	17 (4.5)	m (m)	19 (2.0)	169 (44.2)	152 (47.5)	86 (26.1)	m (m)	140 (28.4)
	Men	1 140 (210.6)	20 (2.8)	17 (3.4)	17 (3.7)	m (m)	17 (2.4)	175 (53.1)	m (m)	m (m)	m (m)	157 (29.8)
Netherlands	M + W	2 027 (159.9)	38 (1.8)	35 (2.2)	30 (1.7)	16 (2.2)	31 (31.4)	164 (17.0)	126 (11.9)	100 (11.2)	83 (14.3)	131 (8.5)
	Women	2 071 (300.7)	36 (2.3)	35 (2.8)	26 (2.3)	20 (3.1)	30 (1.1)	162 (22.7)	119 (14.8)	80 (11.1)	81 (22.2)	122 (9.9)
	Men	2 029 (174.1)	41 (3.0)	35 (2.7)	33 (3.3)	m (m)	33 (1.4)	166 (24.7)	133 (20.5)	115 (19.4)	m (m)	139 (13.4)
New Zealand	M + W	1 714 (146.2)	41 (2.0)	42 (2.2)	41 (2.9)	24 (3.0)	38 (38.2)	140 (23.6)	127 (18.2)	95 (16.3)	97 (32.1)	121 (11.7)
	Women	1 464 (113.3)	34 (2.6)	39 (2.6)	42 (3.0)	22 (3.3)	35 (1.4)	131 (20.7)	111 (14.5)	93 (18.0)	81 (22.9)	109 (9.0)
	Men	1 976 (289.1)	48 (3.3)	45 (2.9)	39 (5.1)	26 (4.6)	41 (1.4)	147 (30.5)	142 (31.2)	98 (26.5)	112 (58.0)	132 (17.6)
Poland	M + W	1 024 (104.1)	17 (1.1)	17 (1.7)	14 (1.9)	m (m)	13 (13.4)	144 (34.4)	138 (48.3)	119 (27.3)	m (m)	137 (24.7)
	Women	911 (139.5)	15 (2.0)	17 (1.9)	12 (1.9)	m (m)	12 (1.0)	m (m)	93 (26.6)	m (m)	m (m)	139 (23.6)
	Men	1 149 (171.0)	19 (3.4)	16 (2.3)	15 (2.8)	m (m)	14 (1.3)	105 (26.9)	181 (87.9)	m (m)	m (m)	134 (40.8)
Sweden	M + W	m (m)	48 (2.6)	56 (2.3)	56 (1.6)	38 (1.9)	50 (50.1)	m (m)	m (m)	m (m)	m (m)	m (m)
	Women	m (m)	47 (3.6)	56 (3.0)	59 (3.0)	39 (2.0)	51 (1.3)	m (m)	m (m)	m (m)	m (m)	m (m)
	Men	m (m)	49 (4.5)	56 (3.1)	52 (2.4)	36 (2.8)	49 (1.2)	m (m)	m (m)	m (m)	m (m)	m (m)
Switzerland	M + W	1 761 (131.5)	44 (2.2)	44 (2.7)	38 (2.5)	25 (3.3)	39 (38.7)	112 (11.9)	83 (6.4)	100 (14.4)	67 (9.4)	96 (6.6)
	Women	1 624 (161.2)	42 (3.4)	45 (3.4)	38 (4.4)	22 (3.8)	37 (1.7)	112 (17.5)	74 (6.0)	87 (13.5)	64 (16.5)	88 (7.3)
	Men	1 882 (188.2)	46 (2.7)	42 (3.2)	38 (3.5)	29 (4.0)	40 (1.5)	113 (16.4)	96 (14.3)	114 (27.2)	70 (10.7)	103 (10.0)
United Kingdom	M + W	1 693 (152.9)	43 (1.6)	45 (2.1)	38 (2.0)	22 (1.7)	38 (38.4)	93 (8.8)	89 (11.6)	76 (9.2)	80 (19.4)	86 (6.3)
	Women	1 404 (137.5)	41 (2.1)	44 (2.8)	36 (2.4)	22 (3.1)	37 (1.5)	62 (5.0)	65 (8.1)	85 (17.8)	85 (35.8)	71 (7.1)
	Men	1 998 (275.2)	45 (3.0)	47 (3.1)	41 (3.4)	22 (2.3)	40 (1.5)	123 (16.5)	109 (17.3)	68 (8.6)	76 (18.0)	100 (9.2)
United States	M + W	1 680 (112.2)	35 (2.8)	41 (2.1)	43 (2.4)	28 (3.0)	37 (37.2)	139 (21.8)	95 (12.6)	76 (9.8)	60 (11.2)	95 (8.3)
	Women	1 544 (127.7)	36 (3.6)	37 (2.9)	42 (2.6)	32 (4.5)	37 (1.5)	117 (23.7)	82 (13.3)	75 (10.0)	71 (17.9)	87 (8.1)
	Men	1 774 (178.2)	33 (3.9)	45 (3.4)	44 (3.2)	23 (3.6)	37 (1.8)	168 (41.1)	107 (18.2)	76 (18.3)	48 (12.4)	104 (12.9)

Figures in brackets represent the sampling error.
Source: OECD and Statistics Canada/International Adult Literacy Survey. See Annex 3 for notes.

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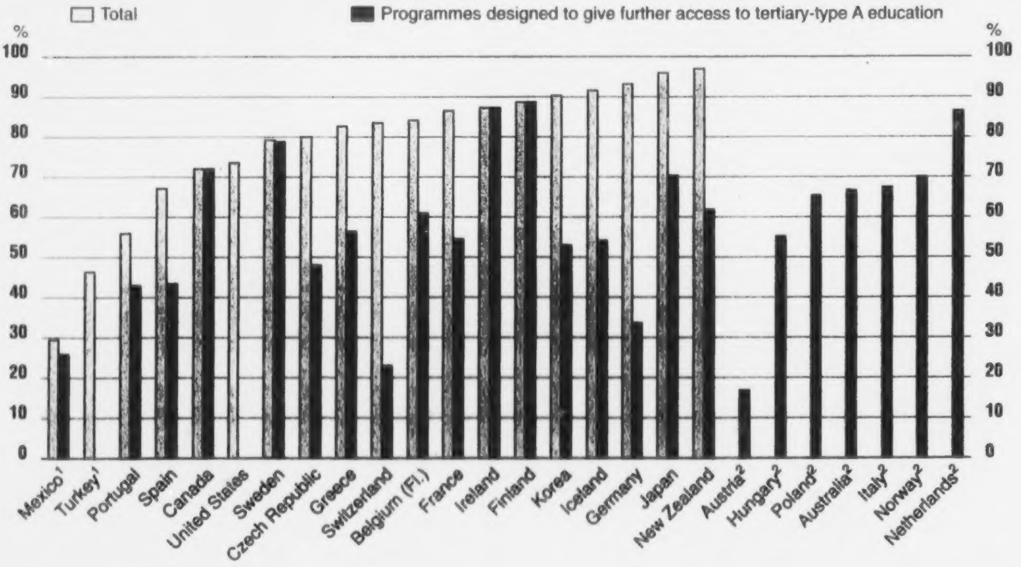
PARTICIPATION IN AND COMPLETION OF SECONDARY EDUCATION

- The rate at which populations attain upper secondary education has risen steeply through successive age groups. In all countries except four, upper secondary graduation rates exceed 70 per cent and in Germany, Iceland, Japan and New Zealand, they exceed 90 per cent. The challenge is now to ensure that the remaining fraction is not left behind, with the risk of social exclusion that this may entail.
- In three out of four countries the majority of upper secondary students are enrolled in programmes that are primarily designed to prepare them for theory-based studies at the tertiary level (tertiary-type A).

- In all OECD countries upper secondary students can choose between vocational, pre-vocational and general programmes. In half of them, the majority of upper secondary students attend vocational or apprenticeship programmes.

Chart C2.1. **Ratio of upper secondary graduates to population at typical age of graduation, by programme destination (1998)**



1. Gross graduation rate may include some double counting.
2. Total graduation rate not comparable due to double counting.

Countries are ranked in ascending order of the ratio of graduates from all types of programmes to population at typical age.

Source: OECD.

POLICY CONTEXT

This indicator shows graduation rates for different types of upper secondary and post-secondary non-tertiary programmes.

Rising skill demands in OECD countries have made upper secondary qualifications the minimum credential required for successful labour market entry. Upper secondary education serves as the foundation for higher (post-secondary) learning and training opportunities as well as preparation for direct entry into the labour market. Although many countries do allow students to leave the education system at the end of the lower secondary level, young people in OECD countries who leave without an upper secondary qualification tend to face severe difficulties in the labour market (see Chapter E).

While high upper secondary completion rates do not guarantee that an education system has adequately equipped its graduates with the basic skills and knowledge necessary to enter the labour market, the upper secondary graduation rate is one indicator of the current success of education systems in producing minimally qualified school-leavers.

It also shows how students are distributed by the educational destination of programmes.

While the completion of upper secondary education is becoming the norm in most OECD countries, routes to it are becoming increasingly varied. Upper secondary programmes can differ in their curricular content, often depending on the type of education or occupation for which the programmes are intended to prepare students. Most upper secondary programmes in OECD countries are primarily designed to prepare students for further studies at the tertiary level. The orientation of these programmes can be general or vocational. Upper secondary programmes which are primarily designed to prepare students for direct labour market entry do, however, exist in most countries as well. Other countries delay vocational training until after completion of upper secondary education, although the level of these post-secondary programmes is often similar to what is offered at the upper secondary level elsewhere.

EVIDENCE AND EXPLANATIONS

Upper secondary graduation rates

In all but five countries, upper secondary graduation rates exceed 70 per cent. In Austria, Germany, Iceland, Japan, Netherlands and New Zealand, they exceed 90 per cent.

Upper secondary graduation rates are estimated as the number of persons, regardless of their age, who graduate for the first time from upper secondary programmes per 100 persons at the age at which students typically complete upper secondary education (see Annex 1). These rates thus take in account students completing upper secondary education at the traditional ages, as well as completions by older students (*e.g.*, those in second chance programmes). In all but five OECD countries, upper secondary graduation rates exceed 70 per cent (Table C2.2). In 11 of the 23 countries for which comparable numbers of graduates are available, graduation rates are above 85 per cent and in Austria, Germany, Iceland, Japan, the Netherlands and New Zealand they exceed 90 per cent. Graduation rates given for some countries in Table C2.2 such as Austria and the Netherlands may be overestimated because of double counting.

The lowest upper secondary graduation rates in the OECD are in Mexico and Turkey (30 and 46 per cent respectively). Among those Canadian and US students who do not successfully complete the last year of upper secondary education, a relatively large proportion are likely to take and pass a test of General Educational Development (GED) at a later point in time. This qualification is formally regarded as equivalent to an upper secondary qualification.

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Upper secondary attainment levels have increased in almost all countries.

A comparison of these graduation rates with the level of educational attainment among older age groups (Indicator A3) indicates that there has been a marked increase in the percentage of persons who complete upper secondary education.

Participation and completion by programme destination

Upper secondary programmes are classified according to the destination for which they have been designed to prepare students.

In most countries, students do not follow a uniform curriculum at the upper secondary level. One way to distinguish different types of curricula is by the type of educational or labour market "career" for which a programme is designed to prepare students. The International Standard Classification of Education (ISCED) distinguishes three types of upper secondary programmes by programme "destination":

> **ISCED 3A:** programmes designed to provide direct access to theory-based tertiary programmes, intended to provide sufficient qualifications to gain entry into advanced research programmes and professions with high skill requirements (tertiary-type A);
>
> **ISCED 3B:** programmes designed to provide direct access to tertiary programmes which focus on occupationally specific skills (tertiary-type B);
>
> **ISCED 3C:** programmes not designed to lead directly to tertiary-type A or B programmes. These programmes are designed to prepare students directly for the labour market, post-secondary non-tertiary programmes (ISCED 4) or other upper secondary programmes.

Direct access neither refers to a strict legal interpretation of the destinations of programmes nor to the actual destinations of students (which might be strongly influenced by the current labour market situation). Programmes are designated as types A, B, or C according to the orientation of the *design* of the curriculum, that is according to the type of tertiary programme for which the curriculum of the upper secondary programme is intented to prepare students.

In almost all OECD countries more than half of students leave formal education at the end of upper secondary education and enter the labour market.

In almost all OECD countries, more than half of students leave formal education at the end of upper secondary education and enter the labour market. It is important that upper secondary education should equip these students with the skills and competencies required for immediate transition to the labour market. For the remaining students, upper secondary education is mainly a preparation for further study at the tertiary level. Net rates of entry to tertiary education and participation rates in other post-secondary non-tertiary programmes give some indication of what proportion of an age cohort continues to study after completing upper secondary education (see Indicator C3).

In nearly three out of four countries the majority of upper secondary students are enrolled in programmes leading to tertiary-type A level.

In 20 out of 28 countries, the majority of students are enrolled in programmes designed to prepare participants for further education at the tertiary-type A level (see Table C2.1). In most countries, the entry rates to tertiary-type A education are significantly lower than the graduation rates from upper secondary programmes that are designed to prepare students for entry to tertiary-type A – implying that there is an underlying need for these programmes to prepare students for the transition to other forms of further education as well as for direct entry into the world of work.

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In Germany and Switzerland more than 60 per cent of all students (47 per cent in Austria) are enrolled in programmes that provide access to further education at the tertiary-type B level. These programmes are primarily dual-system apprenticeship programmes. Upon completion of these programmes, most students enter the labour market, as many of the tertiary-type B programmes require work experience before entry.

Some countries, such as Canada and the United States offer more "modular" programmes at the upper secondary level, which are difficult to classify by destination of study. In these, primarily general programmes, students combine individual courses into a curriculum that can prepare them for entry into higher education or a specific occupation.

Participation and completion in vocational education

Programmes at the upper secondary level can also be subdivided into three categories based on the degree to which they are oriented towards specific occupations or trades and lead to qualifications of immediate relevance to the labour market:

> **Vocational education** programmes are designed to prepare participants for direct entry, without further training, into specific trades or occupations. Successful completion of such programmes leads to a vocational qualification of relevance to the labour market.
>
> **Pre-vocational education** programmes are mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a vocational or technical qualification of relevance to the labour market. For a programme to be considered pre-vocational or pre-technical, at least 25 per cent of its content should to be vocational or technical.
>
> **General education** programmes are not designed explicitly to prepare participants for specific occupations or trades nor for entry into further vocational or technical education programmes.

The degree to which a programme has a vocational or general orientation does not necessarily determine whether or not participants have access to tertiary education. In several countries, programmes with a vocational orientation are designed to prepare for further studies at the tertiary level, while in other countries a number of general programmes do not provide direct access to further education.

In more than half of the OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes.

In all OECD countries students can choose between vocational, pre-vocational and general programmes. In more than half of the OECD countries, the majority of upper secondary students attend vocational or apprenticeship programmes. In countries with dual-system apprenticeship programmes (such as Austria, Germany, Luxembourg, the Netherlands and Switzerland), as well as in the Flemish Community of Belgium, the Czech Republic, Italy and Poland, 60 per cent or more of upper secondary students are enrolled in vocational programmes. The exception is Iceland, where the majority of students are enrolled in general programmes even though dual-system apprenticeship programmes are offered (see Chart C2.2 and Table C2.1).

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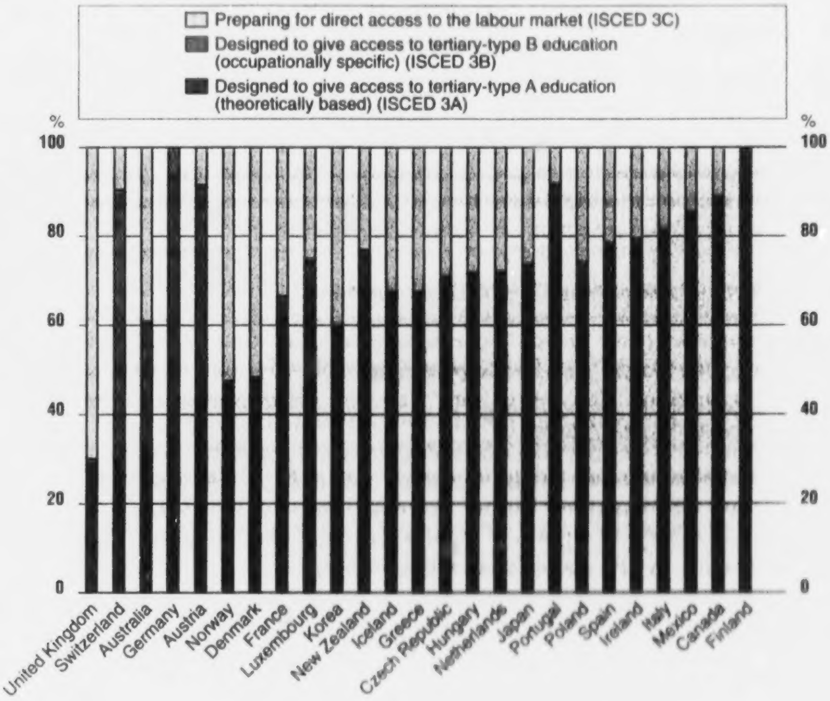
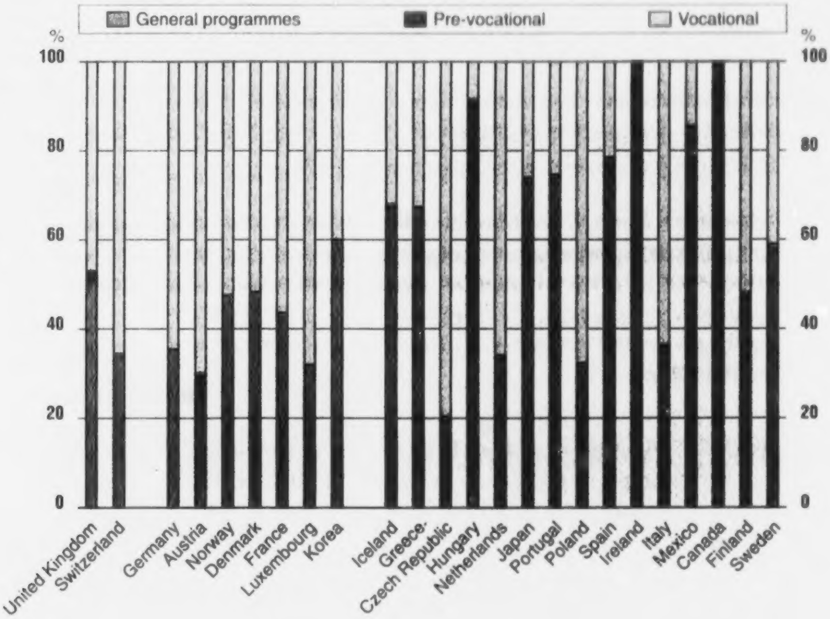
Chart C2.2. **Distribution of upper secondary students by destination and orientation of programme (1998)**

The destination of an upper secondary programme indicates the subsequent tertiary education for which it is designed to prepare for. Programmes that do not prepare for further education lead to direct labour market access.



Vocational programmes prepare students for direct entry into a specific trade/occupation. Pre-vocational programmes prepare for further vocational training.



Countries are ranked in ascending order of the proportion of students in ISCED 3A programmes.

Source: OECD.

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In most countries vocational education is school-based, although in Denmark, Germany and Switzerland every second upper secondary student is enrolled in programmes that have both school-based and work-based elements.

Participation and completion of post-secondary non-tertiary programmes

Some post-secondary programmes can be considered similar to what is offered at the upper secondary level elsewhere.

Some educational programmes straddle the boundary between upper secondary and post-secondary education from an international point of view, even though they might clearly be considered upper secondary or post-secondary programmes in a national context. Although their content may not be significantly more advanced than upper secondary programmes, they serve to broaden the knowledge of participants who have already gained an upper secondary qualification. The students tend to be older than those enrolled at the upper secondary level.

Such programmes are here classified as post-secondary non-tertiary programmes. Typical examples of such programmes would be trade and vocational certificates in Canada and the United States, nursery teacher training in Austria and Switzerland or vocational training in the dual system for holders of general upper secondary qualifications in Germany. In most countries, post-secondary non-tertiary programmes are vocationally oriented and open up access to further education at the tertiary level.

In about half of OECD countries a significant proportion of upper secondary graduates choose to complete a post-secondary non-tertiary programme, either instead of or in addition to tertiary education. In the Flemish Community of Belgium, Hungary and Ireland more than 20 per cent of a typical age cohort complete a post-secondary non-tertiary programme (see Table C2.3).

Gender differences in completion rates

Among older age groups, women have lower levels of education than men…

The balance of educational attainment among men and women in the adult population is unequal in most OECD countries (Indicator A3): historically women have not had sufficient opportunities and/or incentives to reach the same level of education as men. Women are generally over-represented among those who did not proceed to upper secondary education and underrepresented at the higher levels of education.

… but for younger persons the pattern is now reversing.

However, these differences are mostly attributable to the large gender differences in the attainment of older age groups and have been significantly reduced or reversed among younger age groups.

Today, graduation rates for women exceed those for men in most countries.

Today, graduation rates no longer show significant differences between men and women in many countries (Table C2.2). In 15 out of 20 OECD countries for which upper secondary graduation rates are available by gender, graduation rates for women exceed those for men, and in Canada, Finland, Ireland, Portugal and Spain by over 10 percentage points. In Austria, Turkey and Switzerland, by contrast, graduation rates for men exceed those for women by more than 10 percentage points. The gender ratio for upper secondary programmes designed to lead to further tertiary-type A education (ISCED 3A) favours women even more.

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Upper secondary graduates are those who successfully complete the final year of upper secondary education, regardless of their age. In some countries, successful completion requires a final examination; in others it does not.

Dropout rates are based on data on transition collected in 1999 *by the* OECD/INES *Network* B.

Dropouts presented in Table C2.4 are individuals in a specific age range who neither have completed an upper secondary qualification nor are enrolled in a programme to obtain an educational qualification. These data are primarily based on household surveys (see Chapter E for a more detailed description of these data).

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Table C2.1 Distribution of enrolment in upper secondary education by programme destination and programme orientation (1998)

	Distribution of enrolment by programme destination			Distribution of enrolment by programme orientation			
	ISCED 3A	ISCED 3B	ISCED 3C	General	Pre-vocational	Vocational	*of which* combined school and work-based
OECD countries							
Australia	33.1	27.8	39.2	m	m	m	m
Austria	44.1	47.3	8.6	22.5	7.5	70.0	34.9
Belgium (Fl.)	56.3	a	43.7	31.0	a	69.0	4.0
Canada	88.8	n	11.2	88.8	11.2	n	n
Czech Republic	70.7	0.5	28.8	20.0	0.5	79.6	33.4
Denmark	48.2	a	51.8	48.2	a	51.8	51.3
Finland	100.0	a	a	48.0	a	52.0	10.5
France	57.8	8.8	33.4	43.6	n	56.4	11.2
Germany	35.4	64.6	a	35.4	a	64.6	49.1
Greece	67.4	a	32.6	67.4	a	32.6	a
Hungary	71.9	x	28.1	32.6	58.8	8.6	8.6
Iceland	66.8	0.8	32.4	66.8	1.2	32.0	19.7
Ireland	79.5	a	20.5	82.7	17.3	a	x
Italy	80.5	1.2	18.3	35.2	1.2	63.6	x
Japan	73.2	0.7	26.1	73.2	0.7	26.1	a
Korea	60.0	a	40.0	60.0	a	40.0	a
Luxembourg	59.5	15.4	25.1	32.0	a	68.0	14.9
Mexico	85.6	a	14.4	85.6	a	14.4	a
Netherlands	72.2	a	27.8	34.0	a	66.0	19.7
New Zealand	65.9	11.1	23.0	m	m	m	m
Norway	47.5	a	52.5	47.5	a	52.5	x
Poland	74.2	a	25.8	32.4	a	67.6	n
Portugal	73.6	18.4	8.1	74.6	n	25.4	x
Spain	78.5	n	21.5	78.5	n	21.5	2.7
Sweden	m	m	m	58.7	a	40.6	n
Switzerland	30.1	60.4	9.5	34.3	a	65.7	57.9
Turkey	m	m	m	m	m	m	m
United Kingdom	30.0	a	70.0	50.7	2.2	47.1	a
United States	m	m	m	m	m	m	m
Country mean	**64.8**	**9.5**	**25.6**	**51.4**	**4.0**	**44.6**	**15.1**
WEI participants							
Argentina	57.9	x	42.1	58.5	x	41.5	m
Brazil	100.0	a	a	59.2	a	40.8	a
Chile	58.5	41.5	a	58.5	a	41.5	0.4
Egypt	m	m	m	33.6	63.9	2.5	x
Indonesia	60.3	39.7	a	60.3	a	39.7	a
Israel	96.9	x	3.1	53.5	a	43.4	a
Jordan	93.3	a	6.7	76.1	a	23.9	n
Malaysia	17.4	a	82.6	93.0	a	7.0	n
Paraguay	86.9	a	13.1	86.9	a	13.1	a
Philippines	100.0	a	a	100.0	a	a	a
Thailand	53.2	46.8	a	53.2	a	46.8	m
Uruguay	92.1	a	7.9	80.6	a	19.4	x
Zimbabwe	99.6	0.4	a	a	80.9	19.1	a

Source: OECD Education Database. See Annex 3 for notes.

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Table C2.2. **Ratio of upper secondary graduates to total population at typical age of graduation (times 100) by programme destination and orientation (1998)**

	Total (unduplicated)			ISCED 3A (designed to prepare for direct entry to tertiary-type A education)		ISCED 3B (designed to prepare for direct entry to tertiary-type B education)		ISCED 3C (long) similar to duration of typical 3A or 3B programmes		ISCED 3C (short) shorter than duration of typical 3A or 3B programmes		General programmes		Pre-vocational/ Vocational programmes	
	M + W	Men	Women	M + W	Women	M + W	Women	M + W	Women	M + W	Women	M + W	Women	M + W	Women
OECD countries															
Australia	m	m	m	67	72	m	m	m	m	m	m	m	m	m	m
Austria[1]	96	104	88	17	20	52	44	a	a	26	22	17	20	80	68
Belgium (Fl.)[2]	84	82	86	61	65	a	a	23	22	13	17	34	39	64	64
Canada	72	67	78	72	78	a	a	m	m	m	m	m	m	m	m
Czech Republic	80	77	83	48	58	n	n	33	25	a	a	13	16	67	67
Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Finland	89	83	95	89	95	a	a	a	a	a	a	54	65	60	62
France	87	85	88	54	62	10	8	3	3	37	31	35	41	68	62
Germany	93	91	95	34	37	60	59	a	a	a	a	34	37	60	59
Greece	83	78	88	56	65	a	a	27	23	a	a	56	65	27	23
Hungary[1]	90	87	93	55	63	x	x	x	x	32	26	24	30	71	67
Iceland	92	94	89	54	64	n	n	36	20	16	14	54	64	54	36
Ireland	87	80	94	91	98	a	a	a	a	a	a	80	86	15	16
Italy	m	m	m	67	73	1	1	a	a	a	a	26	34	62	60
Japan	96	93	99	70	74	a	a	25	24	x	x	70	74	26	24
Korea	90	91	90	53	49	a	a	a	a	37	41	53	49	37	41
Luxembourg[1]	62	m	m	35	m	7	5	21	m	n	n	22	25	40	m
Mexico[1]	30	m	m	26	m	a	a	4	m	x	m	26	m	4	m
Netherlands[1]	93	91	96	87	89	a	a	6	6	a	a	37	40	56	56
New Zealand	97	m	m	62	67	19	23	14	17	x	x	62	67	34	40
Norway	m	m	m	70	86	a	a	69	49	a	a	70	86	68	49
Poland[1]	m	m	m	65	74	a	a	a	a	32	24	30	41	65	56
Portugal	56	50	62	43	50	12	12	n	n	n	n	44	50	12	12
Spain	67	61	73	43	49	n	n	4	4	21	22	43	49	25	26
Sweden	79	76	82	79	82	a	a	n	n	a	a	42	45	37	37
Switzerland	84	89	78	23	23	47	35	13	18	1	2	m	m	m	m
Turkey[1]	46	53	39	m	m	m	m	m	m	m	m	m	m	m	m
United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
United States	74	70	77	m	m	m	m	m	m	m	m	m	m	m	m
Country mean	**79**	**80**	**84**	**57**	**65**	**9**	**8**	**13**	**11**	**11**	**10**	**42**	**49**	**47**	**46**
WEI countries															
Argentina	37	35	39	m	m	m	m	m	m	m	m	17	23	20	16
Brazil	38	32	44	m	m	m	m	m	m	a	a	19	22	19	22
Chile	52	48	57	29	33	23	23	a	a	a	a	29	33	23	23
Indonesia	28	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Malaysia	59	51	68	7	10	a	a	a	a	51	57	57	66	2	2
Paraguay	21	18	24	19	m	a	a	2	m	a	a	19	m	2	m
Philippines	67	62	72	67	72	a	a	a	a	a	a	67	72	a	a
Thailand	47	53	40	32	25	15	14	n	n	n	n	32	25	15	14

1. Gross graduation rate may include some double counting.
2. Short 3C programmes excluded from the total due to double counting.

Source: OECD Education Database. See Annex 3 for notes.

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Table C2.3. Ratio of post-secondary non-tertiary graduates (ISCED 4) to population at typical age of graduation (times 100) by programme destination and orientation (1998)

	Total (unduplicated)			ISCED 4A (designed to prepare for direct entry to tertiary-type A education)		ISCED 4B (designed to prepare for direct entry to tertiary-type B education)		ISCED 4C		General programmes		Pre-vocational/ Vocational programmes	
	M + W	Men	Women	M + W	Women	M + W	Women	M + W	Women	M + W	Women	M + W	Women
Australia	m	m	m	m	m	m	m	m	m	m	m	m	m
Austria	m	m	m	18.9	20.1	3.5	5.7	1.5	1.8	a	a	23.9	27.7
Belgium (Fl.)[1]	22.8	20.9	24.7	12.3	12.7	a	a	10.5	12.0	0.1	0.1	22.6	24.6
Canada	m	m	m	m	m	m	m	19.4	16.1	0.3	0.4	m	m
Czech Republic	17.3	18.0	16.5	15.3	14.4	a	a	2.0	2.1	a	a	17.3	16.5
Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m
Finland	0.5	0.6	0.5	a	a	a	a	0.6	0.6	a	a	0.6	0.6
France	1.2	0.5	1.8	0.3	0.3	a	a	0.9	1.5	0.3	0.3	0.9	1.5
Germany	15.8	16.7	14.8	10.2	9.9	5.6	4.9	a	a	1.8	1.8	14.0	13.0
Greece[1]	9.3	9.3	9.4	a	a	a	a	9.3	9.4	a	a	9.3	9.4
Hungary[1]	22.4	21.9	23.0	3.9	4.3	a	a	18.4	18.6	3.9	4.3	18.4	18.6
Iceland	3.2	4.4	2.0	a	a	a	a	3.2	2.0	a	a	3.2	2.0
Ireland	23.9	12.1	35.9	a	a	a	a	23.9	35.9	a	a	23.9	35.9
Italy[1]	2.2	1.5	2.9	a	a	a	a	2.2	2.9	a	a	2.2	2.9
Japan	m	m	m	m	m	m	m	m	m	m	m	m	m
Korea	a	a	a	a	a	a	a	a	a	a	a	a	a
Luxembourg[1]	3.7	5.8	1.6	n	n	n	n	3.7	1.6	n	n	3.7	1.6
Mexico	a	a	a	a	a	a	a	a	a	a	a	a	a
Netherlands	1.1	0.3	2.0	n	n	a	a	1.1	2.0	n	n	1.1	2.0
New Zealand	5.6	4.3	6.9	0.7	0.7	1.5	1.6	3.4	4.5	0.7	0.7	4.9	6.1
Norway	m	m	m	a	a	a	a	3.6	0.5	a	a	3.6	0.5
Poland[1]	11.1	6.5	15.9	a	a	11.1	15.9	a	a	a	a	11.1	15.9
Portugal	m	m	m	m	m	m	m	m	m	m	m	m	m
Spain	15.8	14.4	17.2	15.3	16.5	0.5	0.7	a	a	a	a	15.8	17.2
Sweden	m	m	m	m	m	m	m	m	m	m	m	m	m
Switzerland[1]	16.2	13.9	18.6	2.4	1.4	14.0	17.3	a	a	m	m	m	m
Turkey	a	a	a	a	a	a	a	a	a	a	a	a	a
United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m	m
United States	6.6	5.5	7.7	a	a	a	a	6.6	7.7	a	a	6.6	7.7
Country mean	**8.9**	**7.8**	**10.1**	**3.6**	**3.7**	**1.6**	**2.1**	**4.8**	**5.2**	**0.3**	**0.3**	**8.7**	**9.7**

[1] Gross graduation rate may include some double counting.

Source: OECD Education Database. See Annex 3 for notes.

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Table C2.4. **Percentage of young people that are neither enrolled in nor have completed upper secondary education**

	Year	Ages 15 to 19	Ages 20 to 24	Ages 25 to 29	Ages 15 to 29
Australia	1998	15	21	30	22
Belgium	1998	9	16	22	16
Canada	1998	9	13	12	11
Czech Republic	1998	15	7	7	9
Denmark	1997	16	24	25	22
Finland	1998	5	9	14	10
France	1998	5	17	22	15
Germany	1998	m	m	m	m
Greece	1997	m	m	m	m
Italy	1998	20	32	42	32
Korea	1997	1	n	1	n
Netherlands	1998	10	21	24	19
Portugal	1998	25	51	64	47
Spain	1998	20	32	42	32
Sweden	1998	5	9	10	8
Switzerland	1999	11	11	8	10
Turkey	1998	50	62	72	60
Country mean		**13**	**20**	**25**	**20**

Source: OECD Transition Database. See Annex 3 for notes.

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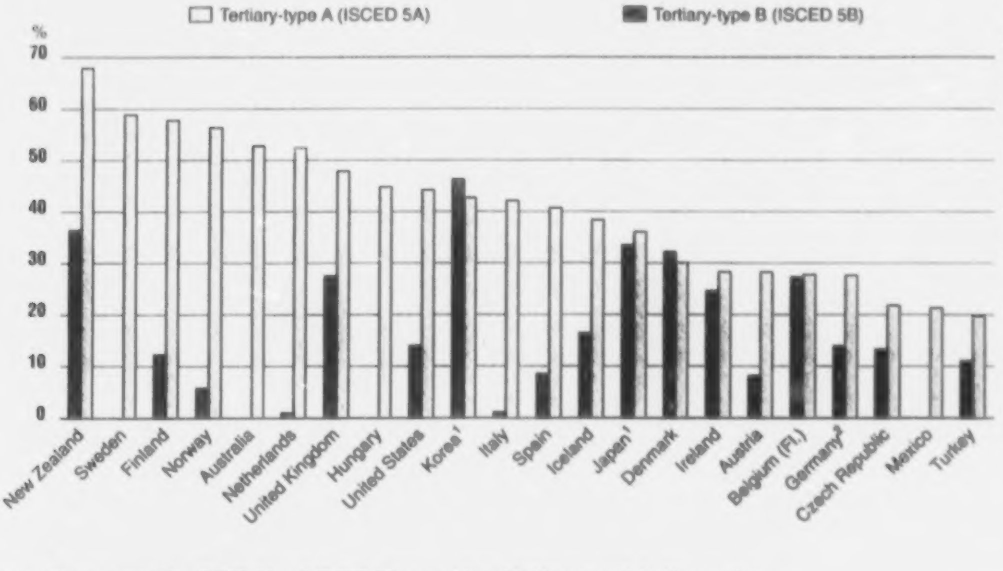
ACCESS TO AND PARTICIPATION IN TERTIARY EDUCATION

- Today, four out of ten school leavers are likely to attend tertiary programmes which lead to the equivalent of a bachelor's degree or higher (tertiary-type A) during the course of their lives. In some countries this is as high as every second school leaver.
- A significant proportion of persons will also start tertiary education aiming for occupational skills (tertiary-type B).
- The number of students enrolled in tertiary programmes grew by more than 20 per cent between 1990 and 1997 in all except five OECD countries, and in eight countries by more than 50 per cent.
- On average across OECD countries, a 17-year-old can now expect to receive 2.3 years of tertiary education, of which 2.0 years will be full-time.

Chart C3.1. **Net entry rates for tertiary education (1998)**



Note: Net entry rates for ISCED 5A and ISCED 5B can not be added because of double counting.
1. Entry rate for type A and B programmes calculated as gross entry rate.
2. Entry rate for type B programmes calculated as gross entry rate.

Countries are ranked in descending order of the total net entry rates for tertiary-type A education.

Source: OECD.

POLICY CONTEXT

This indicator estimates the percentage of youth that will enter different types of tertiary education during the course of their lives.

Tertiary education is associated with better access to employment (Indicator E2) and higher earnings (Indicator E5). Rates of entry to both types of tertiary education are an indication, in part, of the degree to which the population is acquiring high-level skills and knowledge. High tertiary entry and participation rates help to ensure the development and maintenance of a highly educated population and labour force.

Entry and participation rates reflect both the accessibility of tertiary education and the perceived value of attending tertiary programmes.

As students' awareness of the economic and social benefits of tertiary education has increased, so have rates of entry into both tertiary-type A and tertiary-type B education. Continued growth in participation, accompanied by a widening diversity in the backgrounds and interests of those aspiring to tertiary studies, will demand a new kind of provision. Tertiary institutions will be challenged not only to meet growing demand through an expansion of places offered, but also to adapt programmes, teaching and learning to match the diverse needs of the new generation of students.

EVIDENCE AND EXPLANATIONS

Classification of tertiary programmes for international comparison

ISCED-97, *the new international classification of educational programmes, accounts for increasing variety at the tertiary level.*

As participation at the tertiary level is increasing, programmes available to students are becoming more varied. Although universities and colleges of higher education in almost all countries are still the most important provider of tertiary education, this also takes place in other institutional settings. The institution of a programme can no longer serve as an adequate proxy for its "level". The revised International Standard Classification of Education (ISCED-97) focuses on a series of proxies for educational content in order to classify programmes in similar ways across countries. Duration, programme orientation, the qualifications of teaching staff, and the level of further education for which programmes prepare graduates are some of these. First stage tertiary programmes are subdivided into type A programmes, in many countries equivalent to the university-level, and tertiary-type B programmes, which focus on practical/technical/occupational skills.

Tertiary-type A programmes are largely theory-based and designed to prepare students for advanced-research programmes and highly qualified professions.

Tertiary-type A programmes are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Tertiary-type A programmes have a minimum cumulative theoretical duration (at tertiary level) of three years' full-time equivalent, although they typically last four or more years. These programmes are not exclusively offered at universities. Conversely, not all programmes nationally recognised as university programmes fulfil the criteria to be classified as tertiary-type A.

Programmes of tertiary-type B are designed for direct entry into the labour market.

Programmes of tertiary-type B are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes as well. They have a minimum duration of two years full-time equivalent at the tertiary level.

Overall access to tertiary education

If current entry rates continue into the future, 40 per cent of today's young people will enter tertiary-type A programmes during the course of their lives...

Four out of ten of today's young people will enter tertiary-type A education during the course of their lives, assuming current entry rates continue into the future. In Australia, Finland, the Netherlands, New Zealand, Norway and Sweden every second young person is expected to enter tertiary-type A education (Table C3.1). Other countries have considerably lower rates of first-time entry to tertiary-type A education: The estimated first-time entry rates for the Czech Republic, Mexico and Turkey are below 22 per cent.

Net rates of entry to tertiary-type B education and to tertiary-type A education need to be interpreted carefully. Persons who enter tertiary-type B programmes may also enter tertiary-type A programmes later in their lives. First-time entry rates for each level of education cannot be added together to obtain overall tertiary-level entry rates because of the possible double counting of entrants.

... and one in five of today's young people will enter tertiary-type B programmes.

The proportion of people who enter tertiary-type B education is generally smaller than that entering type A education. In 18 OECD countries, every fifth person will on average enter tertiary-type B education. The range is from less than 1 per cent in Italy and the Netherlands to around 30 per cent or more in Denmark, Japan, Korea and New Zealand (Table C3.1).

In Korea, New Zealand and the United Kingdom, rates of entry to both types of tertiary education are among the highest in the OECD.

In some countries, such as Denmark and Japan, wide access to tertiary-type B education counterbalances comparatively low rates of entry to type A education. This is not a general rule, however. In other countries, most notably Korea, New Zealand and the United Kingdom, entry rates at both levels are the highest among OECD countries. Net rates of entry to tertiary education should be reviewed in the light of participation in post-secondary non-tertiary programmes, which are an important alternative to tertiary education in some countries (Indicator C2).

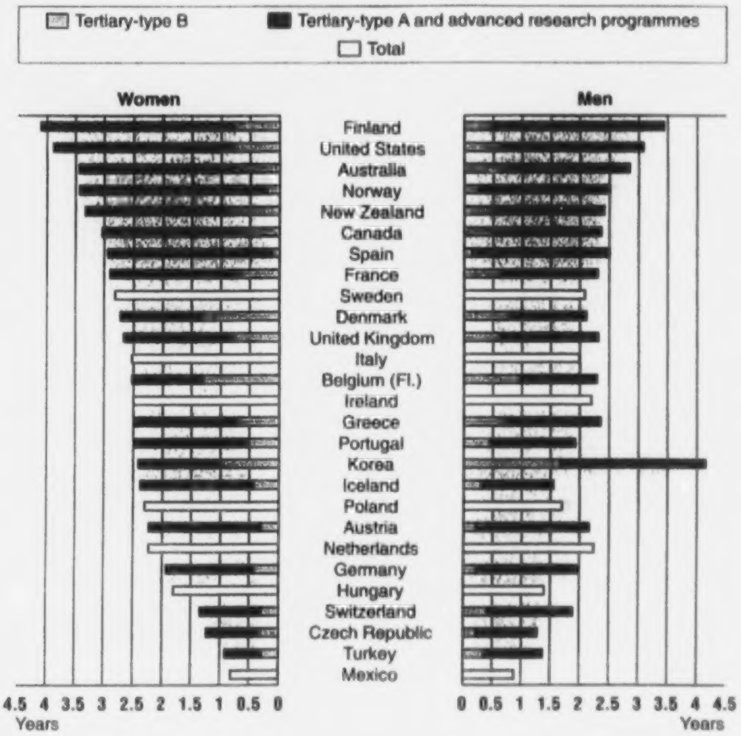
Participation in tertiary education

In addition to entry rates, enrolment rates give a comprehensive picture of total participation in tertiary education. Enrolment rates reflect both the total number of individuals who enter tertiary education and the duration of tertiary studies. The sum of net enrolment rates across single years of age, referred to as the "expectancy of tertiary education", is an overall measure of the amount of tertiary education undertaken by an age cohort rather than by individual participants. Unlike entry rates "expectancy of tertiary education" based on enrolments in tertiary-type A and tertiary-type B education can be totalled.

In Australia, Finland, Korea, Norway and the United States young people can expect to receive three years of tertiary education over the course of their lives.

On average across OECD countries, a 17-year-old can expect to receive 2.3 years of tertiary education, of which two years will be full-time. In Australia, Finland, Korea, Norway and the United States 17-year-olds can expect to receive at least three years of tertiary education, full-time or part-time, over the course of their lives. In Finland and Korea the expectancy of full-time studies exceeds three years. On the other hand, the expectancy of tertiary education is less than two years in the Czech Republic, Hungary, Mexico, Switzerland and Turkey (Table C3.2).

Chart C3.2. **Expected years in tertiary education (1998)**



Countries are ranked in descending order of the expected years of tertiary education for women.

Source: OECD.

Tertiary school expectancy gives a comprehensive picture of total participation in tertiary education. It reflects both the total number of individuals who enter tertiary education and the duration of tertiary studies.

The longer duration of studies in tertiary-type A programmes tends to increase the stock of enrolments, and thus the volume of resources required.

The longer duration of studies in tertiary-type A programmes tends to increase the stock of enrolments, and thus the volume of resources required, all other things being equal. As expenditure per student is, on average, 1.5 times greater in tertiary-type A programmes than in tertiary-type B programmes (Indicator B4), this distribution of student enrolment implies that the vast majority of tertiary expenditure is spent on students in type A programmes. This does not imply, however, that the tertiary-type B sector is an unimportant or unproductive arena for training skilled workers. In fact, the majority of tertiary graduates emerge from tertiary-type B programmes in the Flemish Community of Belgium, Finland, Japan and Korea (see Indicator C4). Higher rates of participation in tertiary-type A programmes relative to tertiary-type B in these countries (Table C3.2) are a result of longer programme duration and not of higher entry rates.

Trends in participation and enrolment

The number of tertiary students grew by more than 50 per cent between 1990 and 1997 in eight out of 25 countries.

Participation in tertiary education increased significantly in the early 1990s (Chart C3.3). The total number of students enrolled in tertiary programmes grew by more than 20 per cent between 1990 and 1997 in all but five OECD countries: Canada, Germany, the Netherlands, Switzerland and the United States. Canada and the United States already showed high levels of tertiary participation in 1990 and have maintained the high levels of tertiary

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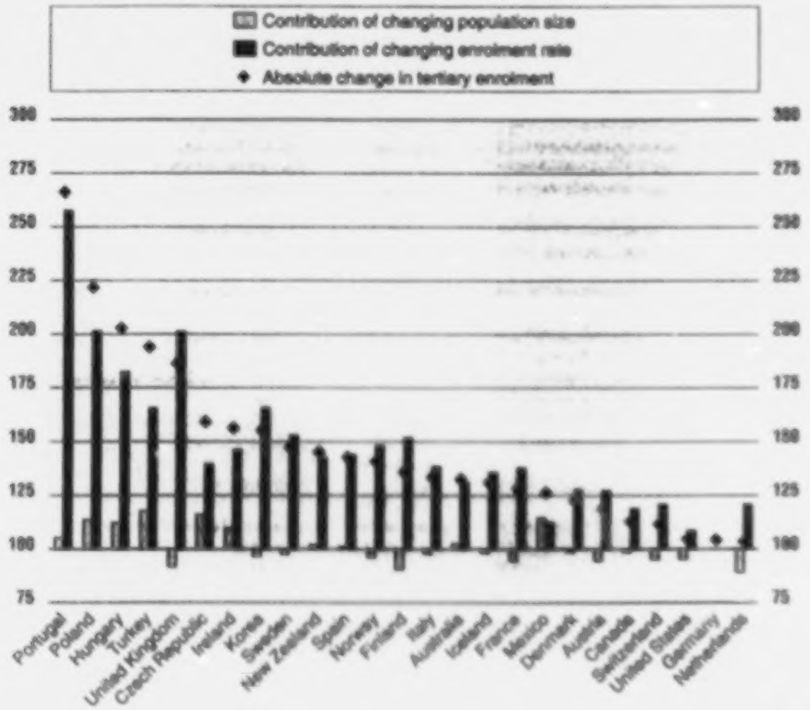
Chart C3.3. Index of change in the number of students at the tertiary level between 1990 and 1997, and contribution of demographic changes and changing enrolment rates to the change in tertiary enrolment (1990 = 100)

The absolute change in tertiary enrolment since 1990 (diamonds) is a result of changes in both population size (light bars) and enrolment rates (dark bars).



Countries are ranked in descending order of the absolute change in enrolment. Data for 1990 and for 1997 follow the ISCED-76 definitions.

Source: OECD. See Annex 3 for notes.

school expectancy. Germany and Switzerland, on the other hand, among the countries with below average tertiary expectancy in 1990, fell further behind and were in 1997 among the countries with the shortest tertiary expectancy (Table C3.4).

The largest increases over the period 1990-97 occurred in the Czech Republic, Ireland, Korea, Turkey and the United Kingdom, where there was an increase of over 50 per cent, and in Hungary, Poland and Portugal, where the number of tertiary students enrolled more than doubled.

The countries with the largest increase in the number of tertiary students tend to be those that had relatively low levels of expectancy of tertiary education in 1990, such as Hungary, Poland, Portugal, Turkey and the United Kingdom. However some countries that already had high levels of tertiary educational expectancy in 1990 also saw a significant increase: in Australia, Finland and New Zealand tertiary education expectancy has increased since 1990 by about a year.

Growing demand, reflected in higher participation rates, is the main factor driving expansion in tertiary enrolments.

At the tertiary level, changes in enrolment rates are less closely tied to changes in the size of the relevant age cohort than is the case at the primary and secondary levels of education. Chart C3.3 decomposes the change in the number of students enrolled into two components: changes in cohort sizes and changes in participation rates. Growing demand, reflected in higher participation rates, is the main factor driving expansion in tertiary enrolments. If there had been no changes in the size of the relevant youth cohort, the number of tertiary students in Poland, Portugal and the United Kingdom would have doubled over the period 1990-97. Whereas in Poland and Portugal the change (123 and 168 per cent) was amplified by an increase of the population at the relevant ages, the opposite was the case in the United Kingdom where the population at the relevant ages declined and the actual increase in tertiary participation amounted to 88 per cent. Mexico is the only country where an increase in the population at the relevant ages contributed more to the increase in the number of tertiary students than rising enrolment rates.

Age of entrants

In the Flemish Community of Belgium and Ireland more than 80 per cent of all entrants to tertiary-type A programmes are about 20 years of age or younger.

Traditionally, entry to tertiary-type A education has typically occurred immediately after the completion of upper secondary education. In a number of countries this is still the case. In the Flemish Community of Belgium and Ireland, for example, more than 80 per cent of all first-time entrants are about 20 years of age or younger (Table C3.1). In other countries, the transition to the tertiary level is often delayed, in some cases by a period of time spent in the labour force. In these countries, first-time entrants to tertiary-type A programmes are typically older and show a much wider range of entry ages. In Denmark, Iceland and Sweden, for example, more than half of the students enter this level for the first time after the age of 22, and less than 20 per cent of first-time entrants are 21 years of age or younger (Table C3.1).

The proportion of older first-time entrants to tertiary-type A programmes, among other factors, may reflect the flexibility of these programmes and their suitability for non-traditional students. In some countries, a sizeable proportion of new entrants are much older than the typical age of entry. In Australia, Iceland, Hungary, Norway, Sweden and New Zealand more than 20 per cent of first-time entrants are 27 years of age or older.

■ DEFINITIONS

Data refer to the school year 1997/98 and are based on the UOE data collection on education statistics (details can be found in Annex 3).

Table C3.1 shows the sum of net entry rates for all ages. The net entry rate of a specific age is obtained by dividing the number of first-time entrants to each type of tertiary education of that age by the total population in the corresponding age-group (times 100). The sum of net entry rates is calculated by adding the net entry rates for each single year of age. The result represents the proportion of persons of a synthetic age-cohort who enter the tertiary level of education, irrespective of changes in the population sizes and differences between countries in the typical entry age. Table C3.1 shows also the 20th, 50th and 80th percentiles of the age-distribution of first-time entrants, *i.e.*, the ages below which are to be found 20 per cent, 50 per cent and 80 per cent of first-time entrants.

New (first-time) entrants are those enrolling at the relevant level of education for the first time. Foreign students who enrol in a country's education system for the first time in a post-graduate programme are considered first-time entrants.

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Not all countries can distinguish between students entering a tertiary programme for the first time and those transferring between the different tertiary levels of education or repeating or re-entering a level after a period of absence. For this reason first-time entry rates for each level of tertiary education cannot be added together to get a tertiary-level entrance rate, because of the inevitable double-counting of entrants that would result.

Table C3.2 shows the expected number of years for which 17-year-olds will be enrolled in tertiary education. It is calculated as the sum of net enrolment rates for persons aged 17 and over (divided by 100). This measure is a function of both the number of people participating in tertiary education and of the duration of tertiary studies. Since the denominator also includes those who have never participated in tertiary education, the indicator cannot be interpreted as the average number of years an individual student requires to complete tertiary education.

Data for 1989/90 are based on a special survey carried out in OECD Member countries in 1997.

Table C3.4 shows the expected years of tertiary education for the academic year 1989/90. The data on tertiary enrolment for 1989/90 were obtained from a special survey carried out in 1997. Countries were asked to report the data according to the same definitions and coverage as for the UOE data collection on education statistics for the 1996/97 academic year.

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Table C3.1 **Net entry rates in tertiary-type A and B education, by gender and age distribution (1998)**

	Tertiary-type B			Tertiary-type A					
	Net entry rates			Net entry rates			Age at		
	M + W	Men	Women	M + W	Men	Women	20th percentile[1]	50th percentile[1]	80th percentile[1]
OECD countries									
Australia	m	m	m	53	45	61	18.4	19.5	27.9
Austria	8	7	9	28	25	31	19.1	20.5	23.8
Belgium (Fl.)	27	22	33	28	28	28	18.3	18.7	19.6
Canada	m	m	m	m	m	m	m	m	m
Czech Republic	13	10	17	22	26	18	18.7	19.8	22.4
Denmark	32	23	42	30	29	32	20.9	22.6	26.9
Finland	12	9	15	58	49	67	19.9	21.4	25.5
France	m	m	m	m	m	m	m	m	m
Germany	14[2]	10[2]	17[2]	28	28	28	20.0	21.4	24.4
Greece	m	m	m	m	m	m	m	m	m
Hungary	m	m	m	45	41	49	19.2	21.1	27.9
Iceland	16	13	19	38	29	48	20.9	22.3	27.0
Ireland	25	23	26	28	27	30	18.0	18.6	19.4
Italy	1	1	1	42	37	47	19.2	19.7	20.7
Japan[2]	33	22	45	36	45	27	m	m	m
Korea[2]	46	49	43	43	48	37	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	m	m	m	21	22	21	18.4	19.7	23.7
Netherlands	1	1	1	52	50	54	18.6	19.9	23.3
New Zealand	36	28	44	68	56	79	18.7	22.0	> 40
Norway	6	6	6	56	45	68	20.0	21.7	28.3
Poland	m	m	m	m	m	m	m	m	m
Portugal	m	m	m	m	m	m	m	m	m
Spain	9	9	9	41	36	46	18.5	19.3	22.5
Sweden	x	x	x	59	50	69	20.1	22.2	29.5
Switzerland	m	m	m	m	m	m	m	m	m
Turkey	11	12	10	20	25	15	18.3	19.7	23.2
United Kingdom	27	25	30	48	45	51	18.5	19.6	26.0
United States	14	13	15	44	40	48	18.4	19.6	26.4
Country mean	**19**	**16**	**22**	**40**	**37**	**43**	–	–	–
WEI participants									
Argentina	27	15	38	48	44	52	19.9	22.6	27.7
Chile	13	14	12	32	34	30	m	m	m
China	7	m	m	4	m	m	m	m	m
Indonesia	4	3	4	8	9	7	17.9	18.7	19.7
Israel	29	28	29	49	43	55	21.2	23.5	27.3
Jordan	13	m	m	24	m	m	18.2	18.6	18.9
Malaysia	13	13	14	15	15	16	20.3	20.8	m
Paraguay	6	3	9	m	m	m	m	m	m
Philippines	a	a	a	49	39	59	17.2	17.5	17.8
Sri Lanka	m	m	m	3	m	m	m	m	m
Thailand	18	18	18	38	33	42	18.5	m	m
Uruguay	20	10	30	26	21	31	m	m	m

[1] 20/50/80 % of new entrants are below this age

[2] Gross entry rate See Annex 3 for details

Source OECD Education Database See 'Annex 3 for notes

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Table C3.2. **Expected years of tertiary education for all 17-year-olds (1998)**

	Tertiary-type B				Tertiary-type A				All tertiary education (type A, B and advanced research programmes)			
	Full-time and part-time			Full-time	Full-time and part-time			Full-time	Full-time and part-time			Full-time
	M + W	Men	Women	M + W	M + W	Men	Women	M + W	M + W	Men	Women	M + W
OECD countries												
Australia	0.8	0.8	0.8	0.2	2.3	2.0	2.5	1.4	3.1	2.8	3.4	1.7
Austria	0.2	0.2	0.3	0.1	1.8	1.8	1.8	1.8	2.2	2.2	2.2	2.1
Belgium (Fl.)	1.1	0.9	1.3	1.0	1.3	1.3	1.2	1.2	2.4	2.3	2.5	2.2
Canada	0.7	0.7	0.7	0.6	1.9	1.6	2.2	1.4	2.7	2.4	3.0	2.0
Czech Republic	0.3	0.2	0.3	0.3	0.9	1.0	0.8	0.8	1.3	1.3	1.2	1.2
Denmark	1.0	0.7	1.3	1.0	1.3	1.3	1.3	1.3	2.4	2.1	2.7	2.4
Finland	0.6	0.4	0.8	0.6	2.9	2.7	3.1	2.9	3.8	3.4	4.1	3.8
France	0.6	0.6	0.7	0.6	1.9	1.6	2.1	1.9	2.6	2.3	2.9	2.6
Germany	0.3	0.2	0.4	0.3	1.7	1.8	1.5	1.7	2.0	2.0	1.9	1.9
Greece	0.7	0.7	0.7	0.7	1.7	1.7	1.8	1.7	2.4	2.4	2.5	2.4
Hungary	m	m	m	m	1.6	1.4	1.8	0.9	1.6	1.4	1.8	0.9
Iceland	0.4	0.3	0.4	0.4	1.6	1.3	2.0	1.6	2.0	1.6	2.4	2.0
Ireland	x	x	x	x	x	x	x	x	2.3	2.2	2.5	1.8
Italy	n	n	n	n	2.2	1.9	2.5	2.2	2.3	2.0	2.5	2.3
Japan	m	m	m	m	m	m	m	m	m	m	m	m
Korea	1.3	1.7	1.0	1.3	1.9	2.4	1.4	1.9	3.3	4.1	2.4	3.3
Luxembourg	0.3	0.2	0.3	0.3	m	m	m	m	m	m	m	m
Mexico	x	x	x	x	0.8	0.9	0.8	0.8	0.9	0.9	0.8	0.9
Netherlands	n	n	n	n	2.2	2.2	2.2	1.9	2.2	2.2	2.2	1.9
New Zealand	0.7	0.6	0.9	0.4	2.1	1.8	2.4	1.5	2.9	2.4	3.3	2.0
Norway	0.2	0.2	0.2	0.2	2.7	2.2	3.2	2.4	3.0	2.5	3.4	2.6
Poland	0.0	0.0	0.0	0.0	1.9	1.6	2.2	1.0	2.0	1.7	2.3	1.0
Portugal	0.5	0.4	0.5	0.5	1.7	1.5	1.9	1.7	2.2	1.9	2.5	2.2
Spain	0.1	0.1	0.1	0.1	2.5	2.3	2.7	2.3	2.7	2.5	2.9	2.5
Sweden	x	x	x	x	2.3	1.9	2.7	1.8	2.4	2.1	2.8	1.8
Switzerland	0.4	0.4	0.3	0.2	1.1	1.3	1.0	1.1	1.6	1.9	1.3	1.3
Turkey	0.3	0.3	0.3	0.3	0.8	1.0	0.6	0.8	1.2	1.4	0.9	1.2
United Kingdom	0.7	0.6	0.8	0.2	1.7	1.6	1.8	1.4	2.5	2.3	2.7	1.7
United States	0.7	0.6	0.8	0.3	2.7	2.4	3.0	1.8	3.5	3.1	3.9	2.1
Country mean	**0.5**	**0.4**	**0.5**	**0.4**	**1.8**	**1.7**	**1.9**	**1.6**	**2.3**	**2.2**	**2.5**	**2.0**
WEI participants												
Argentina	0.7	0.4	1.0	0.7	1.8	1.6	1.9	x	2.4	2.0	2.8	x
Brazil	x	x	x	x	x	x	x	x	0.7	0.6	0.8	0.7
Chile	x	m	m	x	x	m	m	x	1.5	m	m	x
China	x	m	m	x	x	m	m	x	0.3	m	m	x
Indonesia	0.2	0.2	0.2	0.2	0.4	0.5	0.3	0.4	0.6	0.7	0.5	0.6
Jordan	0.2	m	m	0.2	0.9	m	m	0.9	1.0	m	m	1.0
Malaysia	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.9	0.9	0.9	0.8
Philippines	a	a	a	a	1.6	1.2	1.9	1.6	1.6	1.3	1.9	1.6
Thailand	0.3	0.3	0.3	0.3	1.3	1.2	1.4	0.5	1.6	1.5	1.7	0.8
Uruguay	0.5	0.2	0.7	0.5	1.2	0.9	1.5	1.2	1.7	1.2	2.1	1.7

Source: OECD Education Database. See Annex 3 for notes.

Table C3.3. **Distribution of students in tertiary education by mode of enrolment and by type of institution (1998)**

	Mode of enrolment				Type of institution					
	Tertiary-type B		Tertiary-type A and advanced research programmes		Tertiary-type B			Tertiary-type A and advanced research programmes		
	Full-time	Part-time	Full-time	Part-time	Public	Government-dependent private	Independent private	Public	Government-dependent private	Independent private
OECD countries										
Australia	29.0	71.0	61.8	38.2	97.7	2.3	a	100.0	a	a
Austria	65.6	34.4	100.0	n	65.3	34.7	n	97.4	2.6	n
Belgium (Fl.)	83.5	16.5	97.3	2.7	m	m	m	m	m	m
Canada	85.0	15.0	68.4	31.6	96.8	3.2	n	100.0	n	n
Czech Republic	100.0	n	92.4	7.6	81.0	19.0	a	100.0	a	a
Denmark	100.0	a	100.0	a	99.7	0.3	a	100.0	n	a
Finland	100.0	a	100.0	a	77.3	22.7	a	91.1	8.9	a
France	100.0	a	100.0	a	74.1	9.2	16.6	91.0	0.8	8.2
Germany	84.1	15.9	100.0	a	62.7	37.3	x	100.0	a	a
Greece	100.0	a	100.0	a	100.0	a	a	100.0	a	a
Hungary	m	m	61.6	38.4	m	m	a	88.2	11.8	a
Iceland	100.0	n	100.0	n	77.5	22.5	n	99.5	0.5	n
Ireland	65.8	34.2	86.4	13.6	95.1	n	4.9	94.1	n	5.9
Italy	100.0	a	100.0	a	44.8	n	55.2	87.9	n	12.1
Japan	96.5	3.5	91.7	8.3	9.2	a	90.8	26.1	a	73.9
Korea	100.0	a	100.0	a	13.9	a	86.1	24.3	a	75.7
Luxembourg	98.1	1.9	100.0	a	m	n	m	m	a	m
Mexico	100.0	a	100.0	a	m	m	m	73.5	a	26.5
Netherlands	67.0	33.0	83.9	16.1	9.8	90.2	n	32.5	67.5	n
New Zealand	50.4	49.6	73.0	27.0	92.1	2.7	5.2	99.4	0.3	0.4
Norway	92.6	7.4	85.9	14.1	72.0	28.0	x	90.7	9.3	x
Poland	85.3	14.7	m	m	93.0	n	7.0	80.3	n	19.7
Portugal	m	m	m	m	73.2	26.8	x	63.3	36.7	x
Spain	99.1	0.9	91.7	8.3	82.5	6.3	11.2	89.5	n	10.5
Sweden	m	m	74.2	25.8	m	m	a	94.3	5.7	a
Switzerland	36.8	63.2	94.9	5.1	46.5	30.3	23.2	93.9	5.2	0.9
Turkey	100.0	a	100.0	a	99.0	1.0	a	98.3	1.7	a
United Kingdom	30.8	69.2	77.7	22.3	a	100.0	n	a	100.0	n
United States	43.5	56.5	64.2	35.8	92.6	a	7.4	68.9	a	31.1
Country mean	**81.3**	**18.7**	**89.1**	**10.9**	**69.0**	**18.2**	**12.8**	**80.9**	**9.3**	**9.8**
WEI participants										
Argentina	100.0	a	m	m	67.2	23.6	9.2	m	a	m
Brazil	m	m	m	m	m	a	m	40.1	a	59.9
Chile	100.0	n	100.0	n	8.5	6.6	84.9	32.8	23.9	43.2
Indonesia	100.0	a	100.0	a	58.7	a	41.3	29.7	70.3	a
Jordan	m	m	m	m	m	a	m	m	a	m
Malaysia	91.0	9.0	85.8	14.2	61.7	a	38.3	92.9	a	7.1
Paraguay	100.0	a	m	m	61.4	4.4	34.3	m	m	m
Philippines	a	a	100.0	a	a	a	a	24.8	a	75.2
Sri Lanka	m	m	m	m	m	m	m	100.0	n	n
Thailand	m	m	43.7	56.3	55.4	44.6	m	85.8	14.2	m
Uruguay	87.6	a	100.0	a	87.6	a	12.4	92.9	a	9.3

Source OECD Education Database See Annex 3 for notes

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Table C3.4. **Expected years of tertiary education for all 17-year-olds, based on head counts (1990, 1997), and index of change in total enrolment (1990 = 100)**

	Expected years of education (full-time and part-time)						Change in enrolment			
	Tertiary-type B		Tertiary-type A		All tertiary education (type A, B and advanced research programmes)		Total enrolment (1990 = 100) in tertiary education		Attributable to	
	1990	1997	1990	1997	1990	1997	1990	1997	Change in the size of youth cohort	Change in enrolment rates
OECD countries										
Australia	1.3	1.4	1.3	1.8	2.9	3.7	100	134	102	131
Austria	0.1	0.1	1.4	1.7	1.6	2.0	100	121	95	127
Canada	1.2	1.8	2.0	2.0	3.4	4.1	100	115	99	119
Czech Republic	0.1	0.2	0.8	1.0	0.9	1.2	100	161	116	139
Denmark	0.1	0.2	0.9	1.5	1.9	2.4	100	124	99	128
Finland	0.5	0.6	1.5	2.6	2.2	3.4	100	138	91	152
France	x	x	x	x	1.8	2.5	100	130	95	138
Germany	m	0.3	m	1.5	m	1.8	100	106	m	m
Hungary	a	a	0.7	1.3	0.7	1.4	100	205	112	182
Iceland	0.2	0.3	1.2	1.5	1.4	1.9	100	133	98	136
Ireland	x	x	x	x	1.5	2.2	100	158	109	146
Italy	0.1	0.1	1.4	2.0	1.5	2.1	100	135	98	138
Japan	m	m	m	m	m	m	m	m	m	m
Korea	0.4	0.9	1.2	1.8	1.7	2.9	100	157	97	166
Mexico	m	m	0.7	0.8	0.8	0.9	100	128	114	112
Netherlands	a	a	1.0	1.4	1.8	2.2	100	105	89	121
Norway	0.7	0.9	0.8	1.3	2.0	2.9	100	142	96	148
New Zealand	0.8	0.8	1.1	1.8	2.1	3.1	100	147	102	143
Poland	1.0	0.3	1.0	1.6	1.0	1.9	100	223	113	201
Portugal	x	x	x	x	0.9	2.2	100	268	105	257
Spain	n	0.1	1.8	2.4	1.8	2.6	100	144	101	144
Sweden	x	x	x	x	1.6	2.4	100	149	98	153
Switzerland	0.5	0.7	0.6	0.7	1.3	1.5	100	113	95	121
Turkey	0.1	0.3	0.6	0.7	0.7	1.1	100	196	118	165
United Kingdom	0.4	0.6	0.6	1.4	1.2	2.4	100	188	92	201
United States	1.3	1.4	1.7	1.8	3.4	3.7	100	106	96	108
Country mean	**0.5**	**0.6**	**1.1**	**1.6**	**1.7**	**2.4**	**100**	**149**	**101**	**149**
WEI participant										
Israel	0.3	0.5	0.9	1.5	1.5	2.5	100	199	126	159

Note: Tertiary education in this table is defined according to ISCED-76. All other tables are according to the improved version of ISCED-97, that was put in place for 1998 data. Table C3.4 is not fully comparable with other tables in this publication.

Source: OECD Education Database. See Annex 3 for notes.

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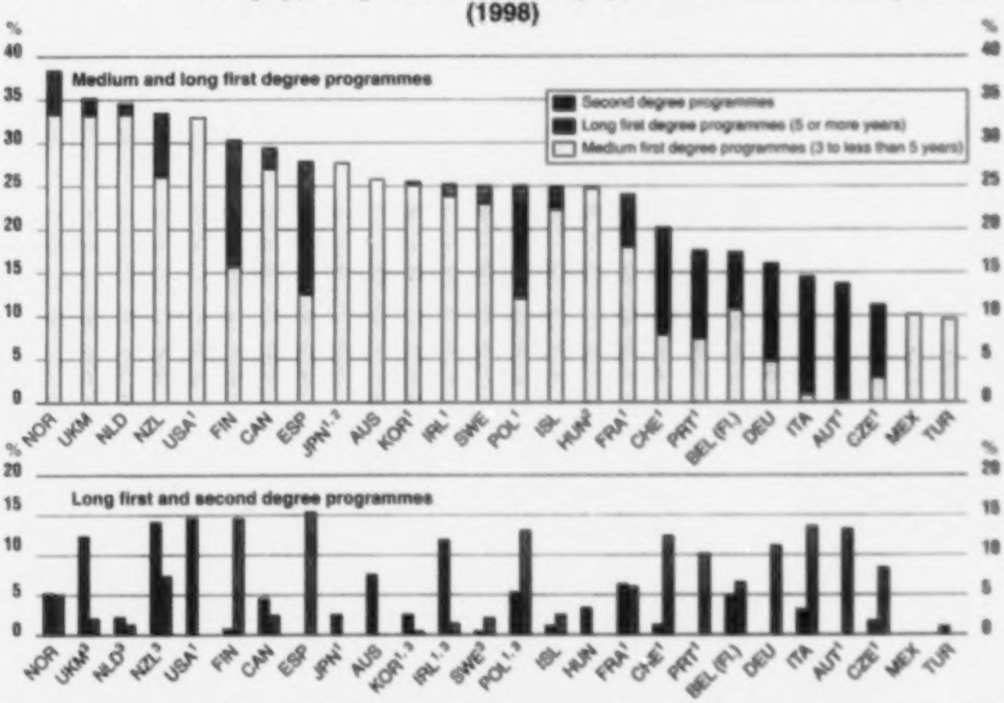
COMPLETION OF AND DROPOUT FROM TERTIARY EDUCATION

- While tertiary participation rates have risen steeply in many OECD countries, not all who participate complete with a degree.
- On average across OECD countries, about a third of all entrants leave tertiary-type A education without completing a degree but this varies greatly among countries: in some countries only a minority of entrants complete the course; in others almost all do.
- On average across OECD countries, 23 per cent of persons at the typical age of graduation complete a tertiary-type A programme.

Chart C4.1. **Tertiary-type A graduation rates by type and duration of programme (1998)**



1. Gross graduation rates. 2. Medium and long first degree programmes combined. 3. Second degree programmes of a cumulative duration of less than 5 years included.

Countries are ranked in descending order of the graduation rates in medium and long first degree programmes.

Source: OECD.

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POLICY CONTEXT

This indicator shows graduation rates, as well as the distribution of graduates over six broad categories of fields of study.

Unlike measures of educational attainment, which relate to the stock of knowledge and skills in the population, tertiary graduation rates are an indicator of the current production rate of higher-level knowledge by each country's education system. Countries with high graduation rates at the tertiary level are the most likely to be developing or maintaining a highly skilled labour force.

Changing opportunities within the job market may affect the fields which students choose to study. In turn, the relative popularity of the various fields of study affects the demand for courses and teaching staff, as well as the supply of new graduates. The popularity of a particular field is likely to be driven by the job opportunities for graduates with skills in that field, as well as by relative earnings in different occupations and sectors.

It also presents dropout rates for tertiary-type A education.

Tertiary-type A dropout and survival rates can be useful indicators of the internal efficiency of tertiary education systems. The specific reasons for leaving university are varied: students may realise that they have chosen the wrong subject or educational programme; they may fail to meet the standards set by their educational institution; or they may find attractive employment before completing their programme. Although "dropping out" is not necessarily an indication of failure by individual students, high dropout rates may well indicate that the education system is not meeting the needs of its clients. Students may not find that the educational programmes offered meet their expectations or their labour market needs. It may also be that students find that programmes last longer than the number of years which they can justify being outside the labour market.

EVIDENCE AND EXPLANATIONS

Dropout and survival in tertiary-type A programmes

Tertiary-type A survival rates differ widely across OECD countries, ranging from above 80 per cent in Japan and the United Kingdom to 55 per cent or less in Austria, France, Portugal and Turkey; in Italy the survival rate is 35 per cent (Chart C4.2). On average across OECD countries, about a third of all entrants leave tertiary-type A education without graduating (Table C4.1).

Dropout rates tend to be higher in countries that mainly offer long programmes.

In general, countries that offer mainly long first tertiary-type A programmes tend to have higher dropout rates than countries offering mainly short programmes.

Data on survival rates do not show a trade-off between wide access to university-level education and high survival rates.

One might expect to see a trade-off between access to university-level education and survival rates (see Tables C3.1 and C4.1). This relationship is not evident across the 20 OECD countries for which data are available, however. For example, the United States – which is among the countries with the highest university entry rates – has a below average survival rate (63 per cent). By contrast, Finland, New Zealand and the United Kingdom have both entry and survival rates above the OECD average. Austria, where entry rates are below the OECD average, is among the countries with one of the lowest university survival rates.

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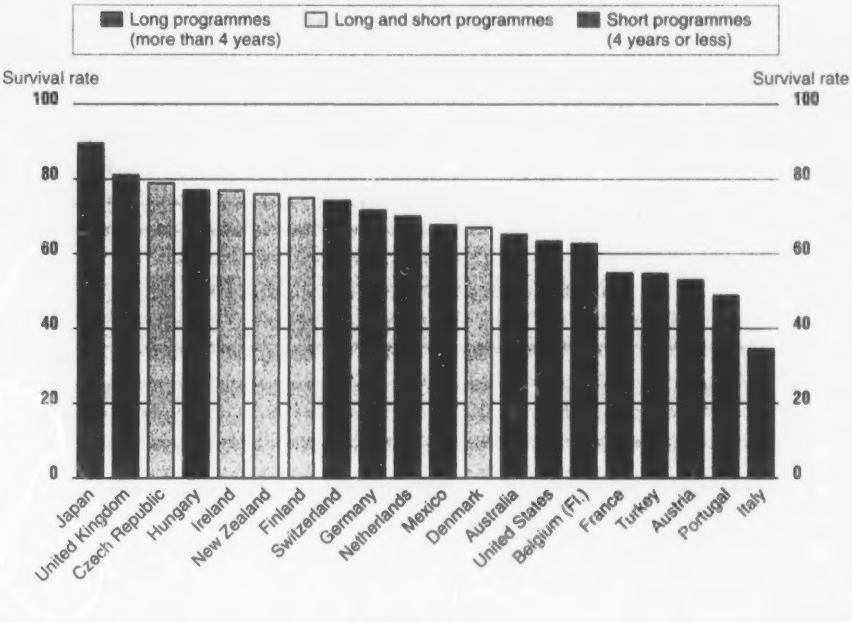
Chart C4.2. **Tertiary-type A survival rates (first tertiary-type A programmes)**



Programmes are classified according to the ISCED-76 definitions.

Source: OECD.

Survival rates show the proportion of entrants to tertiary-type A level education who successfully complete a first degree.
The data refer to international and national statistics.

Overall graduation rates at the tertiary level

Tertiary programmes vary widely in structure and scope between countries.

Tertiary graduation rates are influenced by the supply and degree of access to tertiary programmes, as well as by the demand for higher skills in the labour market. Graduation rates also appear to be affected by the way in which the degree and qualification structures are organised within countries. Tertiary-type A programmes, which are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, vary widely in structure and scope between countries. The duration of programmes leading to a first type A qualification ranges from three years (*e.g.*, the Bachelor's degree in Ireland and the United Kingdom in most fields of study and the *Licence* in France) to five or more years (*e.g.*, the *Diplom* in Germany and the *Laurea* in Italy).

This indicator distinguishes between different categories of tertiary qualifications: *i)* first degrees at tertiary-type B level; *ii)* firsts degree at tertiary-type A level; *iii)* second degrees at tertiary-type A level; and *iv)* advanced research degrees at the doctorate level (ISCED 6).

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Tertiary-type A programmes are subdivided in accordance with the theoretical duration of studies at the tertiary level, to allow for comparisons that are independent of differences in national degree structures.

Countries differ in the way in which tertiary-type A studies are organised, both at universities and other institutions. Whereas there is a clear distinction in most countries between first and second university degrees, *i.e.* undergraduate and graduate programmes, this distinction is not known in other systems. In these latter countries, degrees that are comparable internationally at the "Master's level" are obtained through a single programme of long duration. To ensure international comparability, it is therefore necessary to compare degree programmes of similar cumulative duration, as well as completion rates from first degree programmes. To allow for such comparisons that are independent of differences in national degree structures, tertiary-type A degrees are subdivided in accordance with the total theoretical duration of studies at the tertiary level. For the purpose of this indicator, degrees are divided into those of medium duration (three to less than five years), long (five to six years) and very long duration (more than six years). Degrees obtained from short programmes of less than three years' duration are not considered comparable and are therefore not examined here. Second degree programmes are classified according to the cumulative duration of the first and second degree programme to allow for comparisons between long first degree programmes and second degree programmes.

On average across OECD countries, 23 per cent of persons at the typical age of graduation complete a tertiary-type A programme.

On average across OECD countries, about 23 per cent of persons at the typical age of graduation complete a first tertiary-type A programme. This figure ranges from over 32 per cent in the Netherlands, New Zealand, Norway, the United Kingdom and the United States to below 15 per cent in Austria, the Czech Republic, Italy, Mexico and Turkey (Table C4.2).

On average, just under 5 per cent of persons at the typical age complete a second tertiary-type A programme and 1 per cent a programme leading to an advanced research degree (Chart C4.2). Graduation rates for tertiary-type B programmes account, on average across OECD countries, for nearly 11 per cent of an age cohort (Table C4.2).

Graduation rates for first tertiary-type A degree programmes of a duration of less than five years average 17.5 per cent...

On average across OECD countries, 17.5 per cent of a typical age-cohort complete a first tertiary-type A programme of medium duration (three to less than five years), such as the Bachelor's degree in the United States (Table C4.2). In the Netherlands, Norway, the United Kingdom and the United States about every third person of the typical age of graduation obtains a degree from a tertiary-type A programme of medium duration. By contrast, graduation rates from programmes of less than five years duration are almost negligible (less than 3 per cent) in Austria, the Czech Republic, and Italy (Table C4.2).

... while graduation rates for long and very long first programmes average 6.2 per cent.

Long and very long first tertiary-type A degree programmes, such as the German *Diplom* or the Italian *Laurea*, are often equivalent in total duration and academic level to second tertiary-type A degrees in countries such as Australia and the United States. Graduation rates for long and very long first tertiary-type A programmes average 6.2 per cent across OECD countries and are 13 per cent or above in Austria, Finland, Italy, Poland and Spain (Chart C4.1). They fall between 8 and 13 per cent in the Czech Republic, Germany, Portugal and Switzerland (Table C4.2).

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It appears that countries whose tertiary education systems offer only long first tertiary-type A programmes have, in general, significantly lower overall tertiary-type A graduation rates than those that also offer shorter tertiary-type A programmes. In OECD countries where the majority of first degrees are obtained in programmes of medium duration, graduation rates for all first degree programmes average around 28 per cent of a typical age cohort. On the other hand, OECD countries which do not offer short programmes or which primarily offer long programmes have an average graduation rate of 17 per cent.

Education systems that award short tertiary-type A degrees have, in general, higher graduation rates in first tertiary-type A programmes.

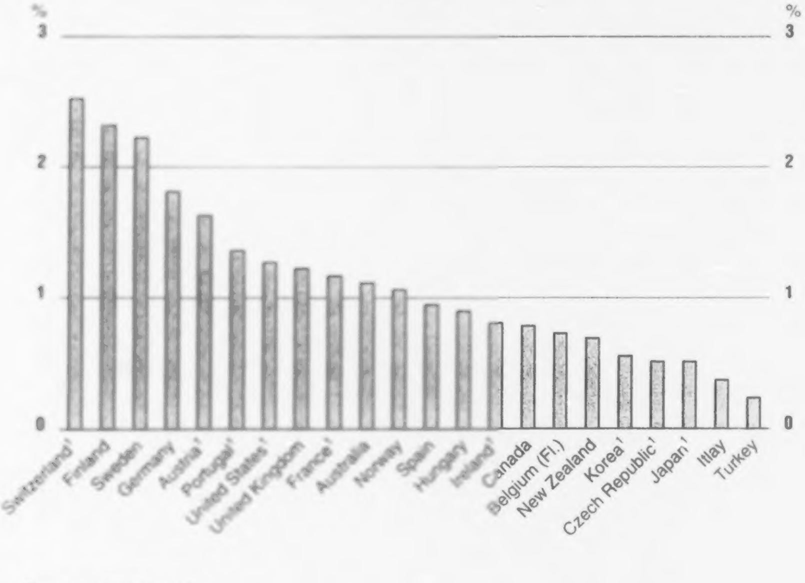
The availability of shorter tertiary-type A programmes seems to lead to wider access to tertiary education (Indicator C3) and to higher rates of successful completion (Tables C4.1 and C4.2). The educational content of programmes, the labour market opportunities that they offer, and the graduation rates and educational content of tertiary-type B programmes and post-secondary non-tertiary programmes should also be taken into account in the interpretation of differences in graduation rates.

Graduation rates for second degree programmes at the tertiary-type A level, such as the Master's in the United States, range from less than 1 per cent in Austria, Finland, Sweden and Turkey to around 12 or more in Ireland, New Zealand, the United Kingdom and the United States. The OECD average is 4.8 per cent. In countries that offer primarily long first tertiary-type A programmes, second degrees are not common or are not offered at all.

Graduation rates for second tertiary-type A degrees range from less than 1 per cent to 12 per cent or more.

On average, about 1 per cent of a typical age cohort in OECD countries obtains an advanced research degree such as a Ph.D. In Germany, Finland and Sweden the figure is around 2 per cent, and in Switzerland 2.5 per cent (see Chart C4.3 and Table C4.2).

Chart C4.3. **Graduation rates from advanced research programmes (1998)**



These programmes are devoted to advanced study and original research, and lead to the award of a qualification at the level of a Ph.D.

1. Gross graduation rates.
Source: OECD.

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Graduation rates at the tertiary-type B level range from below 1.5 to nearly 30 per cent.

Tertiary-type B programmes are more occupationally oriented and lead to direct labour market access. The programmes are typically of shorter duration than type A programmes (typically two to three years). Generally they are not deemed to lead to university-level degrees.

On average across the OECD, 11.2 per cent of an age cohort obtain tertiary-type B first-qualifications. The highest graduation rates, more than 25 per cent, can be found in the Flemish Community of Belgium, Finland, Korea and Japan where graduation rates from tertiary-type B programmes in some cases exceed those from type A programmes. The lowest tertiary-type B graduation rates are in Italy, the Netherlands, Poland and Sweden, which have fewer than two graduates for every 100 people at the typical graduation age (Table C4.2).

Overall completion by field of study

The combined field of social sciences, law and business is the most popular subject at the tertiary-type A level in all but three countries.

In all but three of the countries providing data, the largest concentration of tertiary-type A qualifications awarded is in the field of social sciences, law and business. In Finland and Korea, the largest proportion of degrees are in engineering, manufacturing and construction and in Norway the largest proportion are in education. On average across the OECD every third student graduates with a degree in the social sciences, law or business. The second most popular field is engineering (14.2 per cent), closely followed by humanities and arts (13.5 per cent) and then by education (12.9 per cent). Patterns of student choices nonetheless still differ markedly between countries (Chart C4.3). The percentage of tertiary-type A qualifications awarded in the social sciences, law and business ranges from about 18 per cent in Norway to 41 per cent in the United States.

The percentage of students in science-related fields (engineering, manufacturing and construction, life sciences, physical sciences, mathematics, statistics and computing, but not including health and welfare) ranges from 18 per cent or less in Norway, Poland and the United States to 33 per cent or more in Germany and Korea. Differences in the relative importance of health and welfare are also notable. The proportion of graduates in this field ranges from less than 5 per cent in France, Japan and Poland to over 19 per cent in Italy, Norway and Sweden (Table C4.3*a*).

There is less variance in graduation from science related fields across countries than in overall graduation rates.

Part of the variation in graduation rates between countries (Table C4.2) can be accounted for by differences in the number of tertiary-type A degrees earned in the fields of education and the humanities. Countries with high graduation rates have, on average, a higher proportion of graduates in education and humanities and a lower proportion of graduates in science-related fields. In other words, there is less variation in graduation rates in science-related fields between countries than in overall graduation rates.

The distribution of qualifications awarded by field of study is driven by the relative popularity of these fields among students, the relative number of students admitted to these fields in universities and equivalent institutions and the degree structure of the various disciplines in a particular country. In the United States, for example, degrees are typically earned at several different levels in the humanities (Bachelor's, Master's and Ph.D.), while only one level of degree is typical in the field of law (*Juris Doctor* or J.D.). Thus the relative popularity of the humanities compared with law may be overestimated because an individual can earn multiple degrees in that field.

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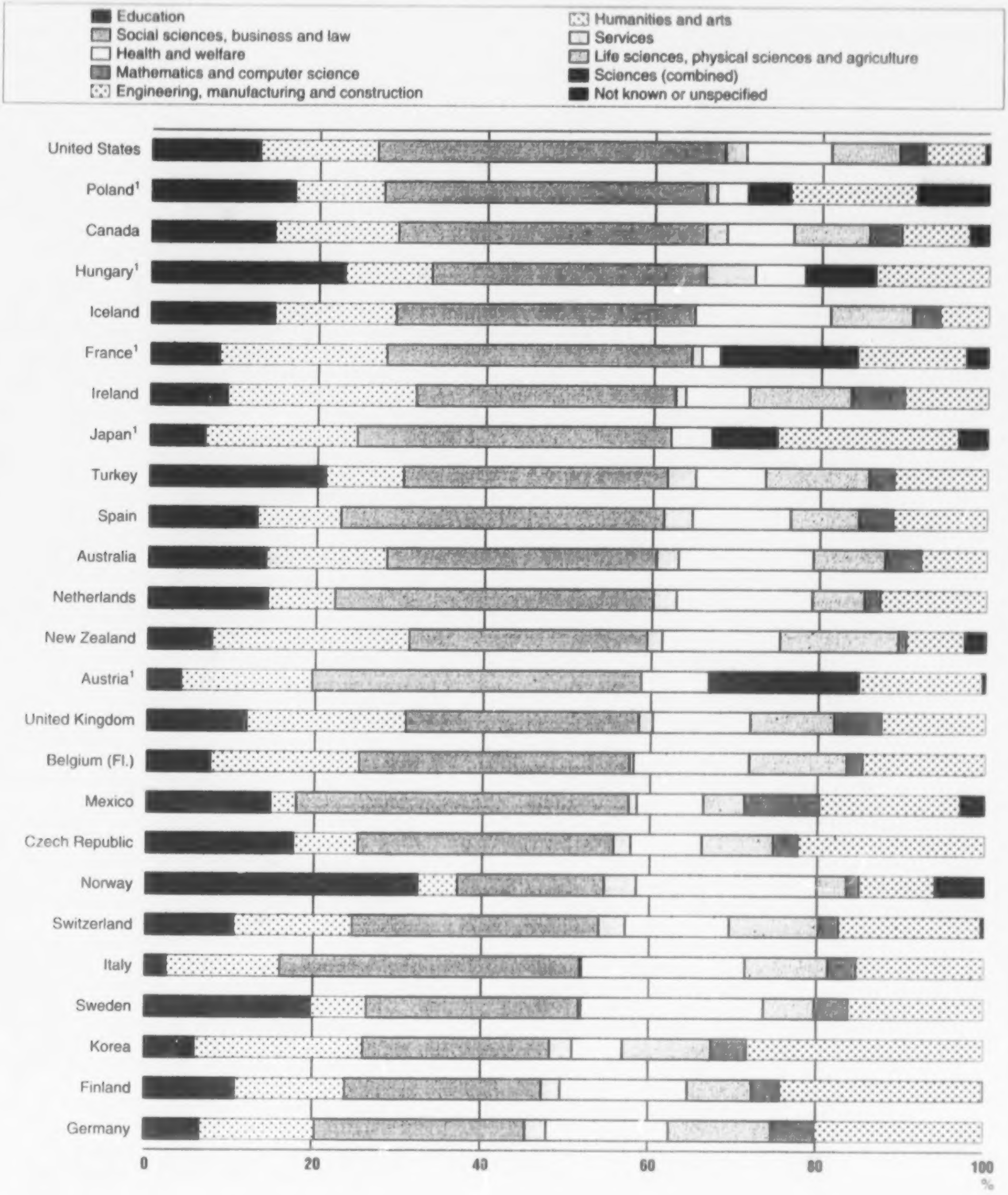
Chart C4.4. Percentage distribution of subjects in which tertiary-type A and advanced research degrees are awarded (1998)



1. Life sciences, physical sciences, agriculture and mathematics and computer science combined in the category "science".

Countries are ranked in descending order of the proportion of qualifications in education, humanities and arts, social sciences, business and law.

Source: OECD.

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The social sciences, law and business and education are also popular at the tertiary-type B level.

The combined field of the social sciences, law and business also has the largest concentration of graduates from tertiary-type B programmes, which are more occupationally oriented (Table C4.3*b*). The second most popular field of study in tertiary-type B programmes is education, followed by engineering, manufacturing and construction and then health and welfare.

In general, the proportion of tertiary-type B graduates in education, health and welfare, services and computing is greater than at the tertiary-type A level (Table C4.3*b*).

The selection of a field of study at this level is heavily dependent on opportunities to study similar subject matter, or to prepare for similar occupations, at the post-secondary non-tertiary or tertiary-type A level. For example, if nurses in a particular country were trained primarily in non-university tertiary programmes, the proportion of students graduating with qualifications in medical sciences from that level would be higher than if nurses were primarily trained in upper secondary or university tertiary-level programmes.

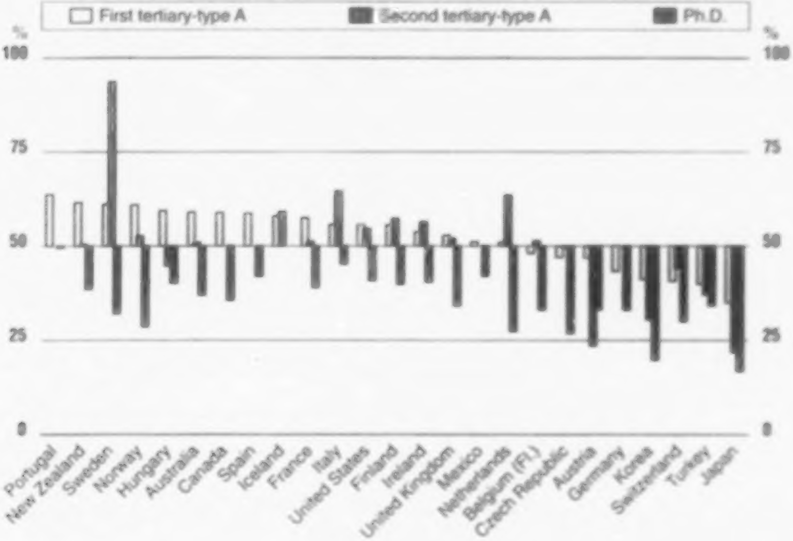
Gender differences in tertiary graduation

First and second tertiary-type A graduation rates for women equal or exceed those for men in most countries…

The tertiary-type A graduation rates for women equal or exceed those for men in 17 out of 25 OECD countries (Chart C4.5). On average across OECD countries, 53 per cent of all first tertiary-type A graduates are women. In New Zealand, Norway, Portugal and Sweden the proportion of women exceeds 60 per cent – though this proportion is 43 per cent or below in Germany, Korea,

50% here shows that an equal amount of tertiary qualifications has been awarded to men and women.

Chart C4.5. **Proportion of tertiary qualifications that are awarded to women (1998)**



Countries are ranked in descending order of the percentage of first tertiary-type A degrees that are awarded to women.

Source: OECD.

Japan, Switzerland and Turkey. Women are also more likely to obtain second tertiary-type A degrees – 52 per cent of all second tertiary-type A degrees are awarded to women (Table C4.4).

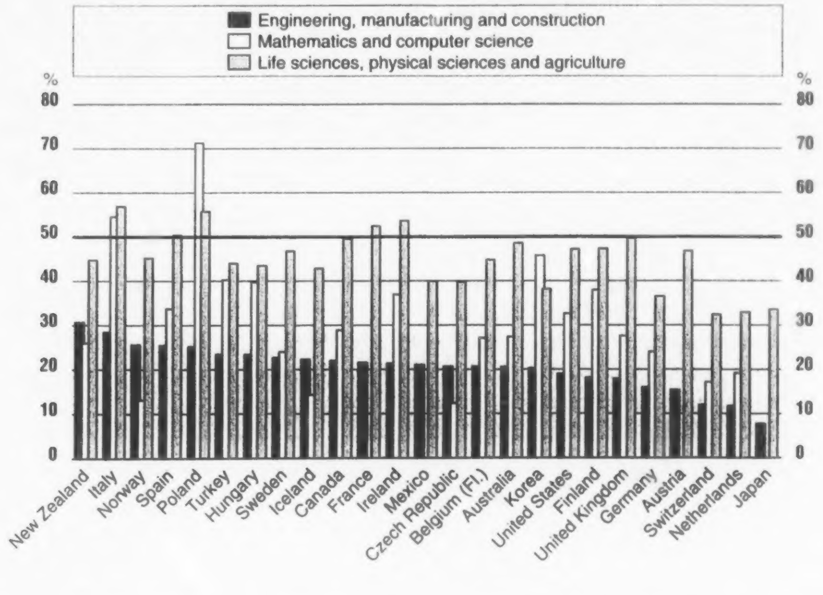
... but men are still more likely than women to earn doctorates.

Men remain more likely than women to attain advanced research degrees in most OECD countries (Table C4.4). Graduation rates from advanced research, *e.g.* Ph.D. programmes, are lower for women than for men in all countries. On average across OECD countries, nearly two-thirds of all graduates at this level are men. In Japan 83 per cent of advanced research degrees are awarded to men. This gender gap can be observed across all fields of study, and is even more pronounced in the humanities and the medical sciences, the fields of study that have the highest proportions of women among first university graduates in all countries.

Women are far less likely than men to earn degrees in mathematics and computer science and in engineering and architecture.

One measure of gender disparity in fields of study is the percentage of degrees or qualifications awarded in a particular field to women. Among all OECD countries that provided data on the number of graduates by field and gender, the highest proportion of female graduates for tertiary-type A is in the humanities, arts and education, and in health and welfare (on average 69 and 65 per cent, respectively). In mathematics and computer science, and engineering, manufacturing and construction, however, women earn far fewer university-level qualifications than men. The percentage of tertiary-type A degrees in engineering, manufacturing and construction awarded to women ranges from 12 per cent or below in Japan, the Netherlands and Switzerland to 28 per cent or above in Italy and New Zealand. Gender disparities are less

Chart C4.6. **Proportion of engineering and scientific tertiary-type A degrees awarded to women (1998)**



50% here shows that an equal amount of tertiary qualifications has been awarded to men and women.

Countries are ranked in descending order of the percentage of engineering degrees awarded to women.

Source: OECD.

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pronounced in life sciences, physical sciences and agriculture, in which on average 45 per cent of all graduates are women. In France, Italy, Ireland and Poland women form the majority of graduates in those fields (Chart C4.6).

Engineering, manufacturing and construction are also less common subjects for women at the tertiary-type B level. The percentage of non-tertiary-type A qualifications in engineering, manufacturing and construction awarded to women ranges from 7 per cent or below in Germany, Luxembourg and the Netherlands to over 35 per cent in Korea and New Zealand (Table C4.4).

DEFINITIONS

Data on dropout and survival rates refer to international and national statistics on tertiary-type A survival rates.

Tertiary-type A survival rate is defined as the proportion of entrants to the tertiary-type A level who successfully complete a first degree, that is, who graduate. Dropouts are accordingly defined as those students who leave the educational system without obtaining a first tertiary-type A degree or equivalent. The first degree at the tertiary level refers to any degree, regardless of the duration of study, obtained at the end of a programme which does not have as a prerequisite the holding of a previous tertiary-type A degree.

They are based on a special survey carried out amongst OECD Member countries in 1997 (details can be found in Annex 3).

One way of expressing tertiary-type A survival is through the ratio of the number of students who are awarded an initial degree to the number of new entrants to the level *n* years before, *n* being the number of years of full-time study required to complete the degree. This method, referred to as the "cross-section cohort method", is the standard methodology used here. It shows a high correlation with most countries' national statistics (Annex 3 gives additional national statistics), but in some cases it does not reflect the situation properly, or cannot be calculated, because of the absence of reliable data on new entrants *n* years before. In these cases, national estimates are included in this indicator.

Three different ways of calculating survival rates were applied in order to obtain these national estimates: *i)* the calculations were based on the cross-section cohort method, but more detailed or more reliable national data on entrants and graduates were used; *ii)* the calculations were based on information from individual student registers, referred to as the "true cohort method"; *iii)* the characteristics of two different year groups (an entry cohort and a graduation cohort) were used to model the probabilities of survival and drop out. This method is referred to as the "synthetic cohort method".

Where the cross-section cohort method is applied, the year of reference gives the reference year for the number of graduates and the year of entrance gives the reference year for the number of entrants. If the true cohort method is applied, the year of entrance gives the year when the observed cohort of students entered the university. These individual students are followed up on an individual basis until the year of reference, to establish whether they drop out or graduate. In this case the difference between the year of reference and the year of entrance is no indication of the typical duration of studies. It rather presents an upper limit of the time students may need to complete studies. If the synthetic cohort method is applied, the year of reference is the year to which all observations of probabilities of graduation or drop out refer. Since different cohorts of entrants are observed at the same time, no specific year of entrance is relevant.

Tertiary graduates are those who obtain a tertiary-type A or tertiary-type B qualification or equivalent in the specified reference year. This indicator distinguishes between different categories of tertiary qualifications: *i)* first qualifications at the tertiary-type B level; *ii)* first tertiary-type A qualifications; *iii)* second university qualifications (ISCED 5A); and *iv)* advanced research degrees of doctorate standard. For some countries, these distinctions are not always clear and data are not available for the categories requested. In such cases, the country has assigned graduates to the most appropriate category. University-level degrees at the ISCDE 5A level are also subdivided in accordance with the total theoretical duration of studies at the level of ISCED 5A, to allow for comparisons that are independent of differences in national degree structures (see above).

Data on graduates refer to 1997/98 and are based on the UOE data collection on education statistics and the World Education Indicators Pilot Project, administered in 1999 (details can be found in Annex 3).

Table C4.2 generally presents net graduation rates. In the case of countries that are able to provide information on graduates by single year of age, this rate is calculated as the sum of age-specific graduation rates. The net graduation rate can be interpreted as the percentage of people within a virtual age cohort who obtain a tertiary qualification, thus being unaffected by changes in population size or typical graduation age. Gross graduation rates are presented for those countries that cannot provide such detailed data. Net graduation rates are less affected by changes in the population size over time, but gross graduation rates have been tested for their robustness against demographic changes over time before being compared with net graduation rates in this publication. In order to calculate gross graduation rates, countries identify the age at which graduation typically occurs. The graduates themselves, however, may be of any age. The number of graduates is then divided by the population at the typical graduation age (see Annex 1). In many countries, defining a typical age of graduation is difficult, however, because graduates are dispersed over a wide range of ages.

Table C4.4 shows the percentage distribution of qualifications among women by subject categories. Tertiary graduates who receive their qualification in the reference year are divided into categories based on their subject of specialisation. These figures cover graduates from all of the university levels reported in Table C4.2 (columns B-G). The comparability of the results depends heavily on the extent to which countries are able to apply consistent subject definitions in accordance with ISCED (Annex 3). There is still considerable variation between countries in the way in which educational programmes are classified by field of study.

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Table C4.1. **Rates of survival at the university-level tertiary education**

	Year of reference	Year of entrance	Number of years required to complete a typical programme	Method	Source	Survival rate	Drop-out rate
Australia	1996	1994	3	Cross-section cohort	OECD database	65	35
Austria	1996	1989	7	Cross-section cohort	National calculation	53	47
Belgium (Fl.)	1996	–	–	Cross-section cohort	OECD database	63	37
Czech Republic	1995	1992	4	Cross-section cohort	OECD database	79	21
Denmark	1995	–	–	Synthetic cohort	National calculation	67	33
Finland	1996	1985	5	True cohort	National calculation	75	25
France	1995	1991	5	Cross-section cohort	OECD database	55	45
Germany	1995	1990	6	Cross-section cohort	OECD database	72	28
Hungary	1997	–	3, 4 or 5	Weighted cross-section	National calculation	77	23
Ireland	1995	1992	4	Cross-section cohort	OECD database	77	23
Italy	1996	1991	6	Cross-section cohort	OECD database	35	65
Japan	1995	1992	4	Cross-section cohort	OECD database	90	11
Mexico	1996	1992	5	Cross-section cohort	National calculation	68	32
Netherlands	–	–	–	True cohort	National calculation	70	30
New Zealand	1995	1992	4	Cross-section cohort	OECD database	76	24
Portugal	1993	1991	3	Cross-section cohort	OECD database	49	51
Switzerland	1996	1991	6	Cross-section cohort	OECD database	74	30
Turkey	1995	1992	4	Cross-section cohort	OECD database	55	45
United Kingdom	1996	–	–	Weighted cross-section	National calculation	81	19
United States	1994	1990	4	True cohort	National calculation	63	37

Note: All data according to ISCED-76.
Source: National Surveys and OECD Education Database. See Annex 3 for notes.

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Table C4.2. **Graduation rates in tertiary education by type of programme (1998)**

		Tertiary-type A					
	Tertiary-type B First degree programmes (A)	Medium first degree programmes (3 to less than 5 years) (B)	Long first degree programmes (5 to 6 years) (C)	Very long first degree programmes (more than 6 years) (D)	Short second degree programmes (less than 6 years) (E)	Long second degree programmes (6 years or longer) (F)	Advanced research programmes (Ph.D. or equivalent) (G)
OECD countries							
Australia	m	25.8	a	a	7.5	n	1.1
Austria*	10.5	0.5	13.2	n	n	n	1.6
Belgium (Flemish Community)	25.8	10.8	5.6	1.0	4.9	x	0.7
Canada	5.5	27.0	1.4	1.0	4.5	m	0.8
Czech Republic*	4.5	2.9	8.3	a	1.7	a	0.5
Denmark	m	m	m	m	m	m	m
Finland	28.4	15.7	14.6	a	m	0.7	2.3
France*	17.5	18.0	5.1	0.9	6.3	a	1.2
Germany	12.5*	4.8	11.2	a	a	a	1.8
Greece	m	m	m	m	m	m	m
Hungary	m	24.7	x	a	3.3	x	0.9
Iceland	9.8	22.3	2.5	n	1.1	n	n
Ireland*	17.7	23.8	1.4	x	11.9	x	0.8
Italy	0.3	0.9	13.6	a	2.2	0.9	0.4
Japan*	29.9	27.7	x	a	2.5	a	0.5
Korea*	29.8	25.1	a	0.4	2.5	a	0.6
Luxembourg*	7.4	a	a	a	a	a	a
Mexico	m	10.1	m	m	m	m	x
Netherlands	0.8	33.3	1.3	a	1.9	0.3	x
New Zealand	12.7	26.1	6.7	0.6	14.1	n	0.7
Norway	6.3	33.3	3.8	1.2	1.0	4.2	1.1
Poland*	0.8	12.0	13.0	a	5.3	a	m
Portugal*	6.5	7.4	10.1	n	m	m	1.4
Spain	4.1	12.5	15.4	n	x	m	0.9
Sweden	1.5	23.0	2.0	0.1	0.4	n	2.2
Switzerland*	m	7.8	11.3	1.0	a	1.2	2.5
Turkey	6.4	9.6	a	a	0.8	0.2	0.2
United Kingdom	11.1	33.2	1.9	0.1	12.3	x	1.2
United States*	9.2	32.9	a	a	12.4	2.2	1.3
Country mean	12.9	13.5 32.3	2.0	14.2	2.5 11.4	3.2	3.3 1
WEI participants							
Argentina	10.0	a	9.0	a	m	m	m
Chile	10.0	5.2	5.9	0.1	n	n	0.4
China	8.0	2.7	x	x	x	x	n
Egypt	2.0	12.6	1.0	0.2	a	a	0.4
Israel	m	25.9	a	a	8.4	a	0.9
Jordan	9.0	11.5	2.0	n	a	a	n
Malaysia	10.0	5.5	m	a	m	m	m
Paraguay	3.0	m	m	m	m	m	m
Philippines	a	19.6	3.4	a	4.3	a	0.1
Thailand	9.0	11.6	x	n	n	n	n
Uruguay	5.0	1.2	3.8	0.7	a	a	1.1

Note. Short tertiary-type A degrees of a duration of less than 3 years are excluded from this indicator.
All graduation rates are net graduation rates, unless marked with * (gross graduation rates).
Source. OECD Education Database. See Annex 3 for notes.

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Table C4.3a. **Percentage distribution of tertiary-type A qualifications between subject categories (1998)**

	Education	Humanities and arts	Social sciences, business and law	Services	Engineering, manufacturing and construction	Agriculture	Health and welfare	Life sciences	Physical sciences	Mathematics and statistics	Computing	Not known or unspecified
Australia	14.0	14.3	32.1	2.6	7.9	1.4	16.1	6.1	1.1	0.6	3.7	n
Austria[1]	4.1	15.5	39.2	n	14.7	4.2	8.0	13.7	x	x	x	0.5
Belgium (Fl.)	7.6	17.7	32.2	0.5	14.6	5.3	13.8	4.1	2.2	0.8	1.1	n
Canada	14.7	14.7	36.7	2.5	8.0	1.2	8.0	5.7	2.2	1.6	2.3	2.4
Czech Republic	17.6	7.6	30.5	2.1	22.3	5.7	8.5	1.2	1.7	0.4	2.6	n
Denmark	m	m	m	m	m	m	m	m	m	m	m	m
Finland	10.8	13.1	23.5	2.2	24.2	3.1	15.1	1.7	2.9	1.3	2.1	0.1
France[1]	8.2	19.9	36.4	1.2	12.9	0.5	2.2	15.9	x	x	x	2.7
Germany	6.7	13.6	25.1	2.5	20.1	2.7	14.5	2.8	6.8	2.1	3.1	n
Greece	m	m	m	m	m	m	m	m	m	m	m	m
Hungary[1]	23.1	10.3	32.7	6.0	13.5	3.9	6.0	4.5	x	x	x	n
Iceland	14.8	14.4	35.7	a	5.9	a	16.2	6.1	3.7	0.6	2.7	n
Ireland	9.2	22.4	30.9	1.2	10.0	1.7	7.6	6.6	3.9	0.7	5.7	n
Italy	2.6	13.5	35.7	0.3	15.2	2.2	19.5	5.7	2.0	2.3	1.1	n
Japan[1]	6.6	18.0	37.5	m	21.6	3.4	4.9	4.4	x	x	x	3.6
Korea	6.0	20.0	22.3	2.7	28.2	3.9	6.0	1.9	4.8	2.4	1.9	n
Luxembourg	m	m	m	m	m	m	m	m	m	m	m	m
Mexico	15.0	3.0	40.0	1.0	17.0	2.0	8.0	1.0	2.0	1.0	8.0	3.0
Netherlands[2]	14.3	7.9	38.0	2.8	12.7	2.4	16.2	1.1	2.7	0.5	1.4	m
New Zealand	7.7	23.4	28.4	1.8	6.9	1.8	14.1	0.4	11.8	0.1	0.9	2.7
Norway	32.4	4.7	17.5	3.8	9.0	1.3	21.5	0.9	1.4	0.3	1.2	6.0
Poland[1, 2]	17.1	10.6	38.4	1.2	15.1	2.9	3.7	2.2	x	x	x	8.7
Portugal	m	m	m	m	m	m	m	m	m	m	m	m
Spain	12.9	9.9	38.5	3.4	11.2	2.9	11.7	2.1	3.2	1.3	2.8	n
Sweden	19.8	6.6	25.2	0.3	16.2	1.1	21.8	5.0	x	4.0	x	n
Switzerland	10.5	14.1	29.3	3.2	17.0	1.6	12.4	4.1	4.9	1.0	1.4	0.4
Turkey	21.0	9.2	31.5	3.4	11.1	4.9	8.4	1.7	5.7	2.5	0.6	n
United Kingdom	11.9	18.9	27.8	1.7	12.4	1.2	11.7	4.3	4.5	1.5	4.2	n
United States	12.9	14.0	41.4	2.6	7.0	2.1	10.1	4.4	1.7	1.0	2.1	0.6
Country mean	12.9	13.5	32.3	2.0	14.2	2.5	11.4	3.2	3.3	1.2	2.3	1.3

[1] All sciences included in life sciences. These data were disaggregated to calculate the country mean for each scientific field.

[2] Only first degree programmes.

Source: OECD Education Database. See Annex 3 for notes.

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Table C4.3b. **Percentage distribution of tertiary-type B qualifications between subject categories (1998)**

	Education	Humanities and arts	Social sciences, business and law	Services	Engineering, manufacturing and construction	Agriculture	Health and welfare	Life sciences	Physical sciences	Mathematics and statistics	Computing	Not known or unspecified
Australia	m	m	m	m	m	m	m	m	m	m	m	m
Austria[1]	31.8	2.2	1.8	5.7	[illegible]	4.7	12.6	2.5	x	x	x	n
Belgium (Fl.)[2]	22.3	5.8	25.7	0.7	12.9	n	28.8	0.4	n	n	3.4	n
Canada[2]	4.8	8.1	28.1	12.7	16.9	3.2	20.0	0.1	0.1	m	4.9	1.2
Czech Republic	15.1	12.3	39.6	2.6	12.3	4.7	10.6	0.9	0.7	0.5	0.7	n
Denmark	m	m	m	m	m	m	m	m	m	m	m	m
Finland	0.1	2.5	37.8	10.5	11.2	2.3	31.6	a	a	a	4.1	n
France[1, 2]	m	m	41.3	5.3	28.5	n	17.1	2.4	x	x	x	5.4
Germany	10.3	1.2	14.6	6.0	14.4	3.6	48.4	a	a	a	0.4	1.0
Greece	m	m	m	m	m	m	m	m	m	m	m	m
Hungary	m	m	m	m	m	m	m	m	m	m	m	m
Iceland	37.8	18.3	22.7	a	4.4	a	1.7	a	a	a	15.1	n
Ireland	0.5	7.1	32.3	10.8	22.4	1.6	6.4	4.3	4.3	n	10.3	n
Italy	49.9	50.1	a	a	a	a	a	a	a	a	a	n
Japan[1]	7.8	16.5	9.2	7.3	16.1	0.5	15.3	n	n	n	n	27.3
Korea	7.9	14.1	19.8	4.5	43.9	1.1	8.2	n	n	n	0.4	n
Luxembourg[2]	30.7	4.0	35.6	m	14.6	m	8.6	m	m	m	6.5	n
Mexico	m	m	m	m	m	m	m	m	m	m	m	m
Netherlands[2]	m	m	36.2	14.0	1.9	m	44.6	m	m	m	3.3	m
New Zealand	42.2	7.8	24.7	6.4	4.6	3.1	8.4	0.9	0.3	n	0.7	0.9
Norway	2.6	5.1	75.0	6.6	0.7	1.0	1.7	0.1	a	a	5.9	1.4
Poland	100.0	a	a	a	a	a	a	a	a	a	a	a
Portugal	m	m	m	m	m	m	m	m	m	m	m	m
Spain	5.9	4.4	33.1	12.5	24.0	0.7	11.7	n	n	n	7.8	n
Sweden	5.8	7.0	17.2	1.5	37.2	8.7	19.2	n	x	3.5	x	n
Switzerland	m	m	m	m	m	m	m	m	m	m	m	m
Turkey[2]	n	2.5	37.8	11.1	23.1	3.8	18.2	n	1.0	n	2.6	n
United Kingdom	7.0	8.2	21.4	2.8	11.6	2.3	35.2	1.8	2.0	0.5	7.2	n
United States	3.0	0.2	33.3	9.1	16.8	1.7	30.7	a	a	a	3.1	2.2
Country mean	**18.7**	**9.1**	**24.9**	**5.8**	**16.4**	**2.3**	**16.2**	**0.5**	**0.5**	**0.3**	**3.6**	**1.6**

Note: Countries with partial missing data were excluded from the calculation of any OECD average.

1. All sciences included in life sciences. These data were disaggregated to calculate the country mean for each scientific field.
2. Only first degree programmes.

Source: OECD Education Database. See Annex 3 for notes.

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Table C4.4. **Percentages of tertiary qualifications in each subject category that are awarded to women, by type of tertiary education (1998)**

	All fields of study					Health and welfare		Life sciences, physical sciences and agriculture		Mathematics and computer science		Humanities, arts and education		Social sciences, business, law and services		Engineering, manufacturing and construction	
	Tertiary-type B (First degree)	Tertiary-type B (Second degree)	First tertiary-type A degrees	Second tertiary-type A degrees	Advanced research degrees	Tertiary-type B	Tertiary-type A	Tertiary-type B	Tertiary-type A	Tertiary-type B	Tertiary-type A	Tertiary-type B	Tertiary-type A	Tertiary-type B	Tertiary-type A	Tertiary-type B	Tertiary-type A
OECD countries																	
Australia	m	m	59	51	37	m	76	m	49	m	27	m	71	m	50	m	21
Austria	46	65	47	24	33	79	57	20	47	40	x	77	65	66	49	10	15
Belgium (Fl.)	60	m	48	51	33	77	61	55	45	15	27	72	63	56	46	18	21
Canada	56	m	59	51	36	83	75	48	50	27	29	70	67	61	57	14	22
Czech Republic	60	a	47	50	27	85	59	51	40	27	12	67	68	63	50	25	21
Denmark	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Finland	67	a	56	57	40	88	79	37	47	45	38	66	76	69	62	11	18
France	53	a	57	51	39	79	54	26	52	x	x	m	72	67	60	13	22
Germany	60	a	43	a	33	80	54	12	37	25	24	84	68	47	42	7	16
Greece	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Hungary	m	m	59	45	40	m	75	m	44	m	40	m	74	m	55	m	23
Iceland	54	a	58	59	n	86	84	a	43	18	14	74	75	36	46	n	22
Ireland	48	48	54	56	41	85	68	54	54	55	37	70	65	56	54	10	21
Italy	62	a	56	65	45	a	63	a	57	a	55	62	83	a	55	a	28
Japan	69	a	35	22	17	82	46	44	34	x	x	91	66	63	23	15	8
Korea	54	30	41	30	20	78	46	41	38	43	46	75	66	58	33	35	20
Luxembourg	58	a	a	a	a	84	m	m	m	4	m	71	m	73	m	2	m
Mexico	m	m	51	m	42	m	59	m	40	m	38	m	63	m	54	m	21
Netherlands	56	a	51	63	27	77	73	m	33	14	19	m	69	42	47	3	12
New Zealand	68	61	61	50	39	83	81	39	45	39	26	75	68	55	51	42	31
Norway	52	a	61	53	29	100	82	26	45	25	13	63	74	52	45	16	26
Poland	87	a	m	74	37	a	40	a	56	a	71	87	92	a	60	a	25
Portugal	67	a	64	m	49	m	m	m	m	m	m	m	m	m	m	m	m
Spain	53	a	59	m	42	80	76	34	50	27	34	74	72	64	58	19	25
Sweden	47	a	61	94	32	92	79	41	47	35	24	73	74	51	58	15	23
Switzerland	m	m	41	44	30	a	54	a	32	a	17	a	56	a	40	a	12
Turkey	50	a	40	37	34	82	50	41	44	25	40	67	44	54	37	21	23
United Kingdom	58	x	53	52	34	84	66	42	50	25	28	60	65	56	52	14	18
United States	61	a	56	55	41	84	74	37	47	47	33	67	67	65	52	13	19
Country mean	**59**	**51**	**53**	**52**	**34**	**84**	**65**	**38**	**45**	**30**	**31**	**72**	**69**	**58**	**49**	**15**	**21**
WEI participants																	
Chile	45	a	50	51	30	m	m	m	m	m	m	m	m	m	m	m	m
China	x	a	x	30	15	m	m	m	m	m	m	m	m	m	m	m	m
Egypt	40	19	43	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Jordan	68	a	47	26	30	m	m	m	m	m	m	m	m	m	m	m	m
Malaysia	54	a	54	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Philippines	a	a	59	76	81	m	m	m	m	m	m	m	m	m	m	m	m
Thailand	46	49	50	51	50	m	m	m	m	m	m	m	m	m	m	m	m

Source: OECD Education Database. See Annex 3 for notes.

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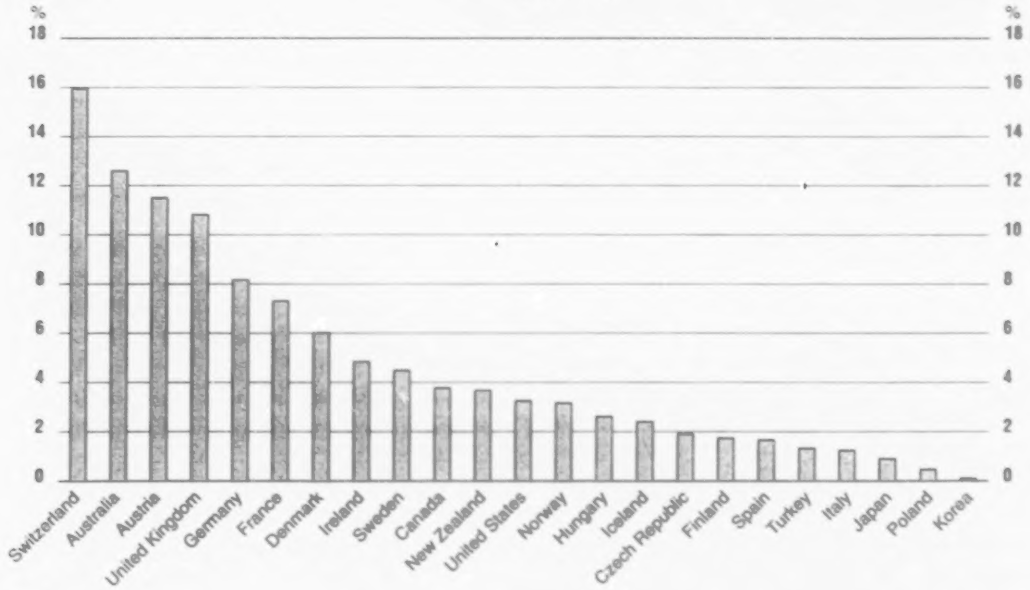
FOREIGN STUDENTS IN TERTIARY EDUCATION

- Five countries (Australia, France, Germany, the United Kingdom and the United States) attract more than eight out of ten foreign students studying in the OECD area.
- The percentage of foreign students enrolled in OECD countries ranges from below 1 to around 16 per cent.
- Proportional to their size, Australia, Austria, Switzerland and the United Kingdom show the largest net inflow of foreign students.
- Greek, Japanese and Korean students comprise the largest proportion of foreign students from OECD countries while students from China and Southeast Asia make up the largest proportion of foreign students from non-OECD countries.

Chart C5.1. **Percentage of tertiary students enrolled who are not citizens of the country of study (1998)**



Countries are ranked in descending order of the percentage of foreign students enrolled.

Source: OECD.

POLICY CONTEXT

This indicator shows the mobility of students between countries.

The international, or cross-cultural, dimension of higher education is receiving more and more attention. The general trend towards free movement of capital, goods and people between countries, coupled with changes in openness of labour markets, has increased the demand for new kinds of skills and knowledge in OECD countries. Governments are increasingly looking to higher education to play a role in broadening the horizons of students and allowing them to develop a deeper understanding of the languages, cultures and business methods found elsewhere in the world.

One way for students to expand their knowledge of other cultures and societies is to attend institutions of higher education in countries other than their own. International student mobility involves costs and benefits to students and institutions, in both the sending and host countries. While the direct short-term monetary costs and benefits of this mobility are relatively easily measured, the long-term social and economic benefits to students, institutions and countries are more difficult to quantify. The number of students studying in other countries, however, provides some idea of the extent of this phenomenon.

It is worth noting that besides student flows across borders, other issues, such as the internationalisation of the curriculum and international electronic delivery of highly flexible programmes aimed at satisfying specialised needs, are also relevant to capturing the internationalisation of higher education. Today we see cross-border mobility not only among participants in education but also in its provision. It will be important in the future to develop ways to quantify and measure these other components of the internationalisation of education.

EVIDENCE AND EXPLANATIONS

Proportion of foreign students studying in OECD countries, by host countries

Five countries attract more than eight out of ten foreign students studying in the OECD area.

A relatively small number of countries enrol the vast majority of foreign students studying in the OECD area. The United States is the largest receiving country of foreign students (in terms of the absolute number of foreign students) with 32 per cent of the total, followed by the United Kingdom (16 per cent), Germany and France (13 and 11 per cent respectively) and Australia (8 per cent) (see Chart C5.2). These five receiving countries account for over 80 per cent of all foreign students studying in OECD countries.

For the purpose of this indicator, a foreign student is someone who is not a citizen of the country in which he or she is studying. In most countries, it has not been possible to distinguish foreign students who are resident in the country as a result of prior migration (by themselves or with their parents) from those who come to the country expressly for the purpose of pursuing their education.

A common language is an important factor in selecting a country in which to study.

An important factor in selecting a country in which to study abroad is likely to be the availability of a common language. The dominance of Australia, the United Kingdom and the United States in the receipt of foreign students is, to a large extent, attributable to the fact that English is both the medium of

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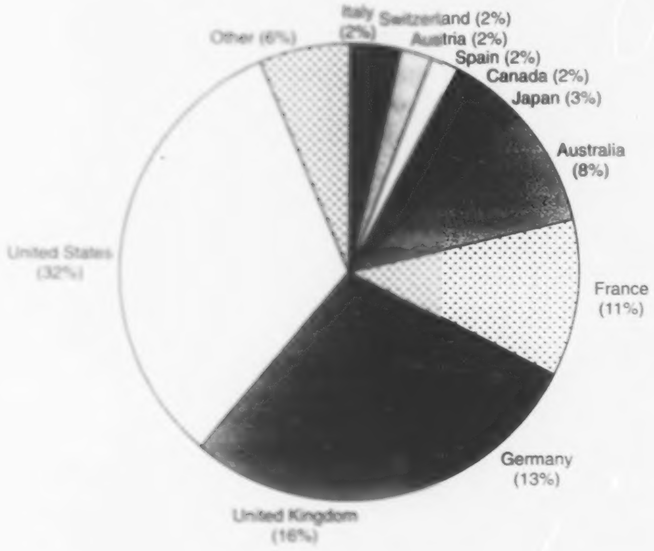
Chart C5.2. **Distribution of foreign students in OECD countries by host country (1998)**



Source: OECD.

This chart shows in which countries foreign students choose to study within the OECD.

instruction in these countries and the language that students intending to study abroad are most likely to know. Many institutions in non-English-speaking countries provide courses in English to attract students from abroad.

Although Germany is a high-ranking destination for foreign students studying in OECD countries, the actual number of non-resident students (or students who attended upper secondary education in another country) registered in German higher education institutions accounts for only two-thirds of all foreign students. This is because of a significant number of "domestic foreigners", consisting mainly of children of "guest workers" who, despite having grown up in Germany, are considered "foreign" for the purposes of this indicator. A quarter of all foreign students in Germany have ethnic origins in Greece, Italy and Turkey.

Proportion of foreign students studying in OECD countries by sending countries

In 1998, 1.31 million foreign students were enrolled in OECD countries. Of all foreign students studying in OECD countries, 43 per cent were from OECD countries and 58 per cent from non-OECD countries.

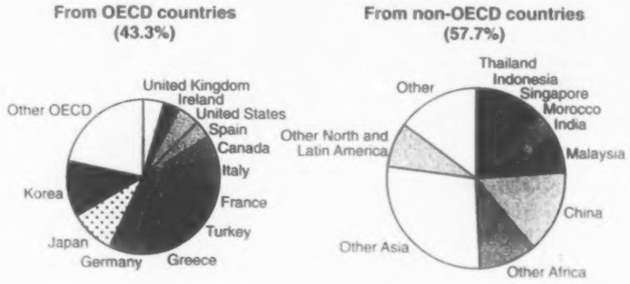
Among all foreign students studying in OECD countries, Greek, Japanese and Korean students comprise the largest proportion of students from other OECD countries, each representing about 4 to 5 per cent of all foreign students, followed by Germans, Turks, French and Italians. Together, these countries account for about 25 per cent of all foreign students in OECD countries and for more than 50 per cent of the foreign students originating from OECD countries (see Chart C5.3).

Greek, Japanese and Korean students comprise the largest proportion of foreign students from OECD countries...

Chart C5.3. **Distribution of foreign students in OECD countries by country of origin (1998)**

This chart shows the origin of foreign students studying within the OECD.

The areas of the charts represent the proportions of foreign students from OECD countries and non-OECD countries.



Source: OECD.

... while students from China and Southeast Asia make up the largest proportion of foreign students from non-OECD countries.

China represents 8.6 per cent of all foreign students studying in OECD countries, followed by Malaysia (3.8 per cent) and India (2.8 per cent) (see Chart C5.3). Other Southeast Asian countries are also very active in sending students to OECD countries, 5 per cent of all foreign students originate from Indonesia, Singapore or Thailand. The importance of international trade, finance and economic issues are likely to be an important factor underlying student mobility in the different regions. For example, regional economic integration through organisations and treaties such as the EU, NAFTA, ASEAN and APEC may also influence international student mobility. National governments in the Asian-Pacific region such as Australia, Japan and New Zealand have initiated policies for their higher education institutions to attract foreign students, often on a revenue-generating or at least self-financing basis.

Asia is the largest and Europe is the second largest source of foreign students.

The largest proportion of foreign students enrolled in OECD countries are from Asia (44 per cent). Europe, with 31 per cent, is the second largest world region as a source of foreign students.

Foreign students as a proportion of the total enrolment

One way to look at the size of student mobility in tertiary education is to examine both the number of tertiary students that a particular country receives from other countries and the number of students that a country sends abroad, relative to the size of tertiary enrolments. These are measures of the intensity of international exchange for each country, as a host as well as a sending country.

The percentage of foreign students enrolled in OECD countries ranges from below 1 to around 16 per cent.

With regard to the proportion of foreign students in total tertiary enrolment, Australia, Austria and Switzerland are the largest receivers, with a proportion of foreign students of between 11 and 16 per cent of their tertiary enrolment, followed by Germany and the United Kingdom (see Chart C5.1). In Luxembourg every third student in tertiary education is not a citizen of Luxembourg. This is due to the special situation in Luxembourg, and it follows that its results are not fully comparable with those of other OECD countries. By contrast, the proportion of foreign students is very small in Korea, as well as in Italy, Japan, Poland and Turkey. These countries report a proportion of foreign students of less than 1.5 per cent (see Chart C5.1).

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Students studying abroad relative to the total enrolment in the home country

It is also possible to estimate the extent to which students leave their country and study abroad. The measure used here only covers students leaving their country to study in other OECD countries that report data. In other words, this measure does not cover students who study abroad in non-OECD countries or non-reporting OECD countries and thus is likely to underestimate the proportion of students who study abroad. It is also likely to underestimate the proportion of students who have some educational experience abroad because it is calculated on a full-year basis. For example, more than half of the students from the United States who are studying abroad leave the country for half a year or less and only 14 per cent stay in the host country for a full academic year. These caveats aside, this measure provides some idea of the degree to which students in OECD countries study abroad.

Iceland, Ireland and Norway have a large proportion of students studying abroad while Mexico and the United States have relatively few.

The ratio of students studying abroad in other OECD countries to total enrolment in the home country varies widely between countries. Typically, the proportion of these students amounts to between 1 and 5 per cent of the total enrolment in their home countries (see column 2 in Table C5.1). The OECD countries with the largest proportions of students studying abroad are Austria, Greece, Iceland, Ireland, Norway, Sweden and Switzerland (4 per cent or more of the tertiary enrolment in the sending country). The countries with the smallest proportions (less than 1 per cent of tertiary enrolment) are Australia, the Czech Republic, Mexico and the United States.

In many countries, students choose between very few destinations. More than 80 per cent of Canadian, Irish, Japanese and New Zealander students studying abroad can be found in one or two other OECD countries (see Table C5.3).

Number of incoming and outgoing foreign students

Various "push" and "pull" factors may explain patterns of student mobility.

The patterns of student mobility can be attributed to a variety of "push" and "pull" factors, such as language barriers, the academic reputation of particular institutions or programmes, the flexibility of programmes with respect to counting time spent abroad toward degree requirements, the limitations of higher education provision in the home country, restrictive policies of university admission at home, financial incentives and costs of tuition, etc.

These patterns also reflect geographical and historical links between countries, future job opportunities, cultural aspirations and government policies to facilitate credit transfer between home and host institutions. The transparency and flexibility of courses and requirements for degrees also count in the choice of institutions.

Proportional to their size, Austria, Switzerland and the United Kingdom show the largest net inflow of foreign students.

Although the United States accepts over 120 000 students more than the total number of American students studying abroad, other countries have much bigger imbalances in student flows relative to their size. The net inflow of students in Austria, Switzerland and the United Kingdom, relative to tertiary enrolment in these countries, is between 3.2 and 6.4 per cent (see Table C5.1, columns 1 and 2). Iceland and Ireland show the highest relative net outflow of students, roughly equivalent to over 10 per cent of total tertiary enrolment. It should be noted that the balances of student flows take only students from and

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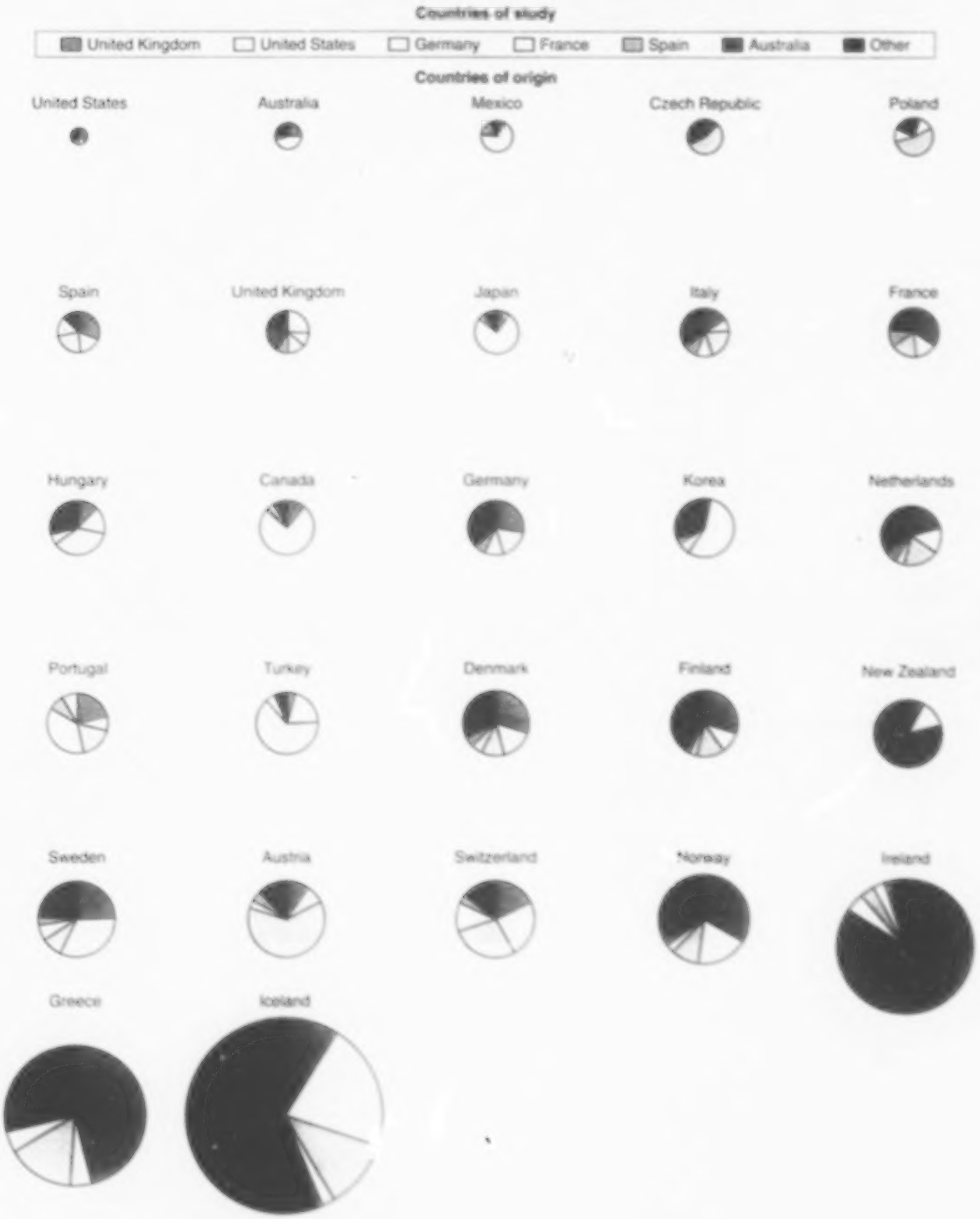
Chart C5.4. Ratio of tertiary students studying in other OECD countries to total tertiary enrolment in countries of origin (1998)



The area of the pie-charts represents the ratio of students studying abroad relative to total tertiary enrolment in the country of origin.

Countries are ranked by the ratio of students studying abroad to total enrolment.

Source: OECD.

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in reporting OECD countries into account. The absolute balance of countries that accept a significant number of students from non-OECD countries or send students to Non-OECD countries may be quite different.

Luxembourg is a special case, since students can only study there at the non-university tertiary level or take the first year at the university level. Further studies have to be taken abroad. Consequently, the number of students from Luxembourg studying abroad is far larger than the number of students enrolled in Luxembourg.

DEFINITIONS

Students are classified as foreign students if they do not hold the citizenship of the country for which the data are collected. The data are collected through the host countries, not through the sending countries, and therefore relate to incoming students to a particular country, rather than to students from that country going abroad. Students studying in countries which did not report to the OECD are not included in this indicator. As a consequence, all statements on students studying abroad underestimate the real number of students abroad, since non-OECD countries and non-reporting countries are excluded. The number of foreign students is obtained following the same method as the data on total enrolment. Normally, domestic and foreign students are counted on a specific day or period of the year. This procedure measures the proportion of foreign enrolment in an education system, but the actual number of individuals involved in foreign exchange might be much higher, since many students study abroad for shorter periods than a full academic year.

Data refer to the academic year 1997/98 *and are based on the* UOE *data collection on education statistics, administered in* 1999 *(for details see Annex* 3*).*

Tables C5.1, C5.2 and C5.3 show foreign enrolment as a proportion of the total enrolment in the host country or country of origin (the sending country). The total enrolment, used as a denominator, includes all foreign students in the country and excludes all students from that country studying abroad. The proportions of students abroad given in Table C5.2 do not show the proportion of all students of a certain nationality who are studying abroad, but express the numbers of students of a given nationality as a proportion of the total domestic and foreign enrolment at the tertiary level in the relevant country, excluding the students who are nationals of that country but are not studying in their home country.

Bilateral comparisons of the data on foreign students should be made with caution, since some countries differ in the definition of foreign students (see Annex 3).

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Table C5.1. Foreign students enrolled as a percentage of all students, and exchange of students within the OECD countries as a percentage of total enrolment, tertiary education (1998)

Reading the first column: 11.5 per cent of all students in tertiary education in Austria are foreign students (from OECD and non-OECD countries).
Reading the second column: Foreign tertiary students from other OECD countries, which report foreign students, represent 7.6 per cent of all tertiary students in Austria.
Reading the third column: 4.4 per cent of all Austrian tertiary students study in other OECD countries, which report foreign students. *Column 4 represents the difference between Column 2 and Column 3.*

	Foreign students as a percentage of all students (foreign and domestic students)	Exchange of students within OECD countries[1]			Foreign enrolment by gender	
		Students from other OECD countries relative to tertiary enrolment	Students studying in other OECD countries relative to tertiary enrolment	Net outflow of foreign students relative to tertiary enrolment	% men	% women
Australia	12.6	3.1[2]	0.7[2]	–2.4[2]	51.5	48.5
Austria	11.5	7.6	4.4	3.2	52.2	47.8
Belgium (Fl.)	4.0	m	m	m	m	m
Canada[2]	3.8	1.5	3.1	1.6	56.9	43.1
Czech Republic	1.9	0.2	0.9	–0.7	63.5	36.5
Denmark	6.0	2.6	3.2	–0.6	41.4	58.6
Finland	1.7	0.6	3.3	–2.7	59.7	40.3
France	7.3	1.5	1.8	–0.3	m	m
Germany	8.2	4.1	2.2	1.8	55.0	45.0
Greece	m	m	14.7	m	m	m
Hungary	2.6	0.6	2.2	–1.6	59.4	40.6
Iceland	2.4	1.9	28.6	–26.7	33.5	66.5
Ireland	4.8	3.4	13.6	–10.2	46.7	53.3
Italy	1.2	0.2	1.8	–1.6	50.0	50.0
Japan	0.9	0.5	1.4	–0.9	54.0	46.0
Korea	0.1	n	2.6	–2.6	61.9	38.1
Luxembourg	30.5	16.1	192.9	–176.8	m	m
Mexico	m	m	0.7	m	m	m
Netherlands	m	m	2.7	m	m	m
New Zealand	3.7	0.8	3.4	–2.6	48.5	51.5
Norway	3.2	1.8	6.0	–4.2	47.9	52.1
Poland	0.5	0.1	1.1	–1.0	53.4	46.6
Portugal	m	m	2.7	m	m	m
Spain	1.7	0.9	1.3	–0.4	50.5	49.5
Sweden	4.5	2.9	4.3	–1.4	44.5	55.5
Switzerland	15.9	10.9	4.5	6.4	55.2	44.8
Turkey	1.3	0.1	2.9	–2.8	72.9	27.1
United Kingdom	10.8	4.8	1.4	3.4	53.9	46.1
United States	3.2	1.2	0.2	0.9	58.1	41.9
Country mean[3]	**4.8**	**2.2**	**4.3**	**3.2**	**53.2**	**46.8**

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1. Only those OECD countries which report the inflow into their system are included in the sum.
2. Tertiary-type A and advanced research programmes only.
3. Country mean excludes Luxembourg.

Source: OECD Database. See Annex 3 for notes.

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Table C5.2. **Number of foreign students enrolled in tertiary education as a percentage of students in the country of destination**

Based on head counts (1998)

The table shows the share of students in each country that have citizenship of another country.
Reading the first column: 0.17 per cent of Australian students are Canadian citizens, 0.02 per cent of Australian tertiary students are Danish citizens, etc.
Reading the first row: 0.02 per cent of Austrian tertiary students are Australian citizens, 0.04 per cent of Canadian tertiary students are Australian citizens, etc.

Countries of origin	Countries of destination Australia[1]	Austria	Belgium (Fl.)	Canada[2]	Czech Republic	Denmark	Finland	France	Germany	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	New Zealand	Norway	Poland	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States
OECD countries																									
Australia	a	0.02	n	0.04	n	0.02	0.01	n	0.01	n	0.02	0.05	n	0.01	n	n	n	0.01	n	n	0.02	0.03	n	0.06	0.02
Austria	0.02	a	0.02	0.01	n	0.02	0.01	0.02	0.32	0.01	0.02	0.03	0.01	n	n	n	n	0.01	n	0.03	0.05	0.46	n	0.05	0.01
Belgium	0.01	0.04	a	0.02	n	0.01	0.01	0.09	0.05	n	n	0.04	0.01	n	n	3.43	n	0.01	n	0.05	0.01	0.16	n	0.11	0.01
Canada	0.17	0.02	0.02	a	0.01	0.03	0.03	0.05	0.02	0.02	0.05	0.05	n	n	n	n	0.02	0.03	0.01	n	0.02	0.09	n	0.15	0.15
Czech Republic	n	0.09	n	n	a	n	n	n	0.05	0.01	n	n	n	n	n	n	n	0.01	0.02	n	n	0.05	n	0.01	n
Denmark	0.02	0.03	0.01	0.01	n	a	0.01	0.02	0.03	n	0.37	0.02	n	n	n	n	0.01	0.34	n	0.02	0.23	0.06	n	0.09	0.01
Finland	0.01	0.07	0.01	0.01	n	0.05	a	0.01	0.05	0.01	0.20	0.06	n	n	n	n	n	0.07	n	0.01	0.84	0.04	n	0.13	0.01
France	0.03	0.15	0.08	0.41	n	0.06	0.02	a	0.30	0.01	0.06	0.34	0.03	n	n	11.72	0.02	0.05	n	0.22	0.08	1.68	n	0.65	0.04
Germany	0.15	2.19	0.13	0.09	0.02	0.32	0.07	0.26	a	0.18	0.17	0.37	0.05	n	n	0.98	0.10	0.16	0.01	0.18	0.25	3.58	n	0.67	0.06
Greece	0.01	0.14	0.06	0.01	0.31	0.01	0.01	0.13	0.40	0.34	0.01	0.02	0.61	n	n	0.16	n	0.01	n	0.01	0.06	0.20	0.09	1.30	0.02
Hungary	0.01	0.36	0.02	0.01	0.01	0.01	0.03	0.02	0.10	a	n	n	0.01	n	n	n	n	0.01	0.01	n	0.04	0.08	n	0.04	0.01
Iceland	n	0.01	n	n	n	0.34	0.02	n	0.01	n	a	n	n	n	n	n	n	0.11	n	n	0.12	n	n	0.01	n
Ireland	0.05	0.02	0.02	0.01	n	0.02	0.01	0.03	0.03	n	0.02	a	n	n	n	n	n	0.01	n	0.02	0.02	0.02	n	0.84	0.01
Italy	0.03	2.68	0.13	0.02	n	0.04	0.02	0.18	0.33	0.01	0.04	0.07	a	n	n	2.56	n	0.02	n	0.17	0.05	2.49	n	0.27	0.02
Japan	0.13	0.12	0.03	0.15	n	0.02	0.02	0.06	0.09	0.01	0.04	0.03	0.01	a	0.02	n	0.22	0.01	n	n	0.02	0.06	n	0.28	0.32
Korea	0.30	0.13	0.01	0.09	n	n	n	0.07	0.24	a	n	n	0.01	0.46	a	n	0.12	n	n	0.01	0.01	0.03	n	0.12	0.29
Luxembourg	n	0.12	0.01	n	n	n	n	0.05	0.06	n	n	0.01	n	n	n	a	n	n	n	n	n	0.13	n	0.03	n
Mexico	0.01	0.02	0.01	0.07	n	0.01	n	0.03	0.02	n	n	n	n	n	n	n	0.01	n	n	0.05	0.01	0.04	n	0.05	0.06
Netherlands	0.05	0.04	1.57	0.02	n	0.05	0.01	0.03	0.11	n	0.01	0.03	n	n	n	0.05	0.01	0.05	n	0.05	0.06	0.15	n	0.13	0.01
New Zealand	0.62	n	n	0.01	n	0.01	n	n	n	n	0.01	n	n	n	n	n	a	n	n	n	0.01	n	n	0.02	0.01
Norway	0.07	0.04	0.01	0.02	0.01	0.63	0.02	0.02	0.05	0.11	0.31	0.04	n	n	n	n	0.01	a	0.01	0.01	0.35	0.08	n	0.19	0.02
Poland	0.02	0.28	0.05	0.01	0.03	0.11	0.02	0.07	0.33	0.02	0.05	n	n	n	n	0.05	n	0.04	a	n	0.14	0.17	n	0.03	0.01
Portugal	0.01	0.02	0.02	0.01	n	0.01	0.01	0.17	0.08	n	0.01	0.01	n	n	n	5.99	n	0.01	n	0.04	0.01	0.23	n	0.10	0.01
Spain	0.01	0.12	0.07	0.02	n	0.04	0.01	0.17	0.25	n	0.06	0.16	0.01	n	n	0.54	n	0.02	n	a	0.04	0.96	n	0.35	0.03
Sweden	0.06	0.11	0.01	0.03	0.01	0.24	0.15	0.04	0.05	0.03	0.22	0.04	0.01	n	n	n	0.04	0.31	0.01	0.02	a	0.12	n	0.15	0.03
Switzerland	0.02	0.11	0.02	0.02	n	0.03	0.01	0.04	0.09	n	0.01	0.02	n	n	n	n	n	0.02	n	0.01	0.04	a	n	0.06	0.01
Turkey	0.02	0.47	0.10	0.01	n	0.13	0.02	0.10	1.24	0.01	n	a	0.01	n	n	n	n	0.03	n	n	0.03	0.30	a	0.09	0.06
United Kingdom	0.82	0.08	0.05	0.12	0.08	0.20	0.05	0.17	0.13	0.01	0.05	1.22	0.01	0.01	n	0.16	0.04	0.20	n	0.15	0.15	0.20	0.01	a	0.09
United States	0.23	0.17	0.08	0.38	0.02	0.13	0.06	0.11	0.19	0.15	0.20	0.88	0.01	0.03	0.01	n	0.18	0.17	0.02	0.03	0.16	0.22	n	0.50	a
Total: OECD and non-OECD countries																									
Total: Africa	0.25	0.41	0.62	0.59	0.12	0.14	0.25	3.14	0.76	0.08	0.01	0.21	0.13	0.01	n	0.33	0.04	0.33	0.04	0.17	0.15	0.93	0.04	1.76	0.16
Total: Asia	8.62	1.59	0.72	1.44	0.26	0.70	0.40	0.81	2.91	0.42	0.12	1.07	0.17	1.29	0.08	0.05	2.49	0.59	0.09	0.06	0.81	1.38	0.96	3.61	2.08
Total: Europe	1.17	8.88	2.42	0.91	1.12	2.55	0.93	1.84	3.93	1.91	1.89	2.54	0.85	0.04	n	26.21	0.24	1.91	0.50	1.04	3.10	11.95	0.32	4.39	0.48
Total: North America	0.30	0.24	0.13	0.59	0.03	0.17	0.10	0.23	0.26	0.17	0.25	0.96	0.04	0.04	0.01	n	0.22	0.21	0.03	0.14	0.22	0.40	n	0.80	0.33
Total: Oceania	0.67	0.02	0.01	0.05	n	0.03	0.01	0.01	0.01	n	0.04	0.05	n	0.01	n	n	0.61	0.01	n	n	0.02	0.03	n	0.06	0.03
Total: South America	0.06	0.13	0.10	0.12	0.03	0.07	0.02	0.17	0.19	0.01	0.07	n	0.04	0.02	n	0.11	0.03	0.08	n	0.25	0.13	0.47	n	0.13	0.17
Not specified	1.51	0.22	0.02	0.08	0.34	2.36	0.03	1.10	0.09	n	0.01	n	n	n	n	3.76	0.04	n	n	n	0.04	1.10	n	0.03	n
Total: All countries	**12.59**	**11.49**	**4.03**	**3.78**	**1.89**	**6.01**	**1.73**	**7.30**	**8.16**	**2.61**	**2.40**	**4.84**	**1.24**	**0.90**	**0.10**	**30.46**	**3.67**	**3.16**	**0.46**	**1.66**	**4.60**	**15.95**	**1.32**	**10.81**	**3.24**

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1. Students enrolled in tertiary-type B programmes included in "Not specified".
2. Tertiary-type A and advanced research programmes only.

Source: OECD Education Database. See Annex 3 for notes.

Table C5.3. **Number of students enrolled in tertiary education in other countries as a percentage of students enrolled in the country of origin**

Based on head counts (1998)

The table shows the share of students from each country that are studying in other countries.
Reading the first column: 0.13 per cent of Canadian tertiary students study in Australia, 0.14 per cent of Danish students study in Australia, etc.
Reading the first row: 0.05 per cent of Australian students study in Canada, 0.01 per cent of Australian students study in France, etc.

Countries of origin	Countries of destination																									Total
	Australia[1]	Austria	Belgium (Fl.)	Canada[1]	Czech Republic	Denmark	Finland	France	Germany	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg	New Zealand	Norway	Poland	Spain	Sweden	Switzerland	Turkey	United Kingdom	United States	
Australia	a	n	n	0.05	n	n	n	0.01	0.02	n	n	0.01	n	0.04	n	n	n	n	n	n	0.01	n	n	0.13	0.24	0.53
Austria	0.05	a	0.01	0.03	n	0.01	0.01	0.14	2.74	0.01	n	0.02	0.04	0.01	n	n	n	0.01	0.01	0.20	0.05	0.28	n	0.42	0.35	4.39
Belgium	m	m	a	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Canada	0.13	n	n	a	n	n	0.01	0.08	0.04	0.01	n	0.01	n	0.02	n	n	n	n	0.01	n	0.01	0.01	n	0.25	1.67	2.23
Czech Republic	n	0.10	n	n	a	n	n	n	0.50	0.01	n	n	n	0.01	n	n	n	0.01	0.12	0.01	0.01	0.03	n	0.12	n	0.92
Denmark	0.14	0.03	0.01	0.09	n	a	0.02	0.17	0.36	n	0.02	0.01	0.03	0.01	n	n	0.01	0.34	0.01	0.16	0.36	0.05	n	0.95	0.52	3.18
Finland	0.04	0.07	0.01	0.05	n	0.04	a	0.12	0.45	0.01	0.01	0.03	0.03	0.01	n	n	n	0.05	n	0.10	0.94	0.02	n	0.97	0.35	3.29
France	0.01	0.02	0.01	0.23	n	0.01	n	a	0.31	n	n	0.02	0.03	0.01	n	0.01	n	n	n	0.19	0.01	0.13	n	0.62	0.26	1.83
Germany	0.05	0.26	0.01	0.04	n	0.03	0.01	0.25	a	0.02	n	0.02	0.05	0.01	n	n	0.01	0.01	0.01	0.15	0.03	0.26	n	0.62	0.40	2.23
Greece	0.02	0.09	0.03	0.05	0.18	0.01	0.01	0.73	2.27	0.23	n	0.01	3.05	0.01	n	n	n	n	0.02	0.07	0.04	0.08	0.34	6.75	0.73	14.69
Hungary	0.02	0.35	0.02	0.02	0.01	0.01	0.03	0.14	0.80	a	n	n	0.04	0.02	n	n	n	0.01	0.03	0.01	0.05	0.05	n	0.27	0.36	2.22
Iceland	n	0.27	0.04	0.51	0.02	7.73	0.47	0.60	3.26	0.04	a	0.05	0.04	0.09	n	n	n	2.40	0.02	0.23	4.21	0.09	n	2.53	6.08	28.58
Ireland	0.39	0.03	0.02	0.10	n	0.03	0.02	0.40	0.45	n	n	a	0.01	0.01	n	n	n	0.01	n	0.18	0.03	0.03	n	11.46	0.62	13.62
Italy	0.01	0.35	0.01	0.01	n	n	n	0.19	0.36	n	n	0.01	a	n	n	n	n	n	n	0.15	0.01	0.20	n	0.28	0.15	1.76
Japan	0.08	0.01	n	0.05	n	n	n	0.03	0.05	n	n	n	n	a	0.01	n	0.01	n	n	n	n	n	n	0.13	1.06	1.40
Korea	0.12	0.01	n	0.05	n	n	n	0.06	0.19	x	n	n	n	0.70	a	n	0.01	n	n	n	n	n	n	0.09	1.46	2.62
Luxembourg	n	16.19	0.76	2.02	n	0.05	n	59.78	70.95	0.05	n	0.76	0.92	0.16	n	a	n	0.05	0.05	0.71	0.11	10.63	n	27.41	3.76	192.85
Mexico	m	n	n	0.04	n	n	n	0.04	0.02	m	n	m	n	0.01	n	n	n	n	n	0.05	n	n	n	0.06	0.50	0.72
Netherlands	0.08	0.02	0.62	0.03	n	0.02	0.01	0.13	0.51	n	n	0.01	0.02	0.01	n	n	n	0.02	n	0.17	0.03	0.05	n	0.55	0.38	2.66
New Zealand	1.36	n	n	0.10	n	0.01	n	0.01	0.03	n	n	n	n	0.04	n	n	a	n	n	n	0.01	n	n	0.26	0.45	3.40
Norway	0.27	0.05	0.01	0.09	0.01	0.63	0.02	0.19	0.61	0.16	0.01	0.03	n	0.01	n	n	0.01	a	0.10	0.11	0.54	0.07	n	2.00	1.13	6.02
Poland	0.01	0.06	0.01	0.01	0.01	0.02	n	0.12	0.57	0.01	n	n	n	0.01	n	n	n	0.01	a	0.01	0.03	0.02	n	0.05	0.14	1.08
Portugal	0.02	0.01	0.01	0.03	n	0.01	0.01	0.99	0.48	n	n	n	0.01	0.01	n	0.03	n	0.01	n	0.22	0.01	0.10	n	0.56	0.22	2.70
Spain	0.01	0.02	0.01	0.01	n	n	n	0.20	0.30	n	n	0.01	0.01	n	n	n	n	n	n	a	0.01	0.08	n	0.39	0.22	1.28
Sweden	0.14	0.09	0.01	0.09	0.01	0.15	0.13	0.29	0.37	0.03	0.01	0.02	0.04	0.01	n	n	0.02	0.20	0.02	0.14	a	0.07	n	1.06	1.41	4.33
Switzerland	0.12	0.18	0.02	0.18	n	0.04	0.02	0.55	1.25	n	n	0.02	0.04	0.02	n	n	n	0.02	0.01	0.15	0.07	a	n	0.79	1.08	4.47
Turkey	0.02	0.08	0.01	0.01	n	0.02	n	0.15	1.85	n	n	n	0.01	n	n	n	n	n	n	n	0.01	0.03	a	0.12	0.58	2.89
United Kingdom	0.40	0.01	n	0.08	0.01	0.02	0.01	0.18	0.15	n	n	0.09	0.01	0.01	n	n	n	0.62	n	0.12	0.02	0.02	0.01	a	0.39	1.35
United States	0.01	n	n	0.03	n	n	n	0.02	0.03	n	n	0.01	n	0.01	n	n	n	n	n	n	n	n	n	0.07	a	0.20

1. Tertiary-type A and advanced research programmes only. Students enrolled in tertiary-type B programmes in the country of origin are excluded from the denominator.

Source: OECD Education Database. See Annex 3 for notes.

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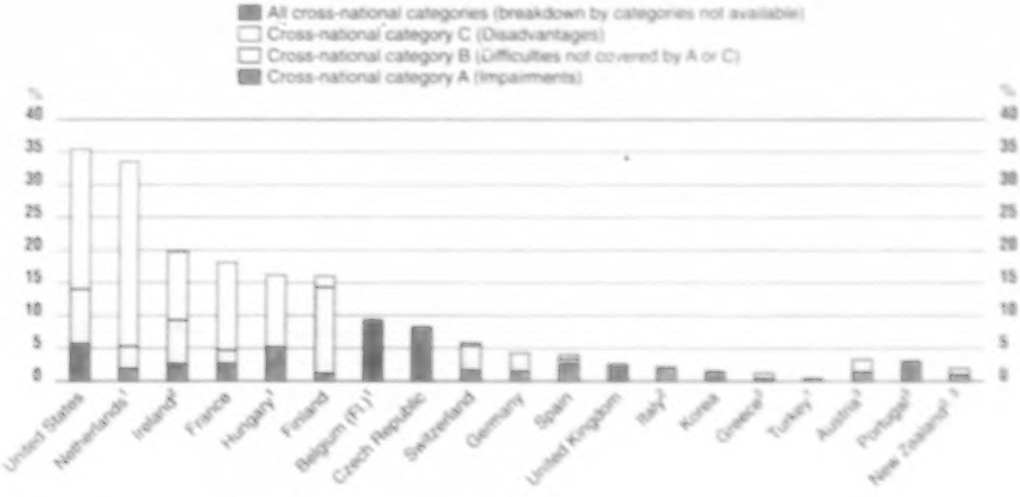
STUDENTS RECEIVING ADDITIONAL RESOURCES TO ACCESS THE CURRICULUM

(Disabilities, learning or behaviour difficulties and social disadvantages)

- Different countries identify very different proportions of students as being in need of additional support. The proportion of these students receiving additional resources ranges from 35 per cent of all students in primary and lower secondary education to less than 1 per cent.
- Students with disabilities (as included in cross-national category A) will, in some countries, be educated in segregated special schools while in others they will be in regular schools. Such differences reveal potential inequities between countries' provision and will give all students very different educational and socialising experiences.
- In almost all countries substantially more males than females are receiving additional resources.

Chart C6.1. **Students receiving additional resources to access the curriculum (1996)**
As a percentage of all students in primary and lower secondary education,
by cross-national categories – based on head counts



1. Coverage different for primary and lower secondary education.
2. Public institutions only.
3. Cross-national category C not available. Cross-national category B not available for Portugal.

Countries are ranked in descending order of the percentage of students receiving additional resources. Countries with partially missing data are placed at the right.

Source: OECD.

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POLICY CONTEXT

This indicator compares the proportions of students who are provided with additional resources in order to help them access the curriculum.

Students with disabilities, learning, behavioural or emotional difficulties and those from disadvantaged backgrounds often receive additional support in school to enable them to make satisfactory progress. Many continue to be educated in special schools, but increasingly they are included in mainstream education.

The orientation of educational policies towards lifelong learning and equity has particular significance for these students since they face the greatest risk of exclusion, not only from regular school classes but also from the labour market and in life generally. Monitoring the educational provision which is made for these students is of great importance especially given the substantial extra resources which may be involved.

Many countries have positive policies towards equitable provision for them, in particular for the inclusion of those with disabilities into society. However, legislative frameworks, traditional attitudes, teacher training, segregated systems and categorical descriptions (such as disability categories) among other factors may militate against inclusion and even favour exclusion. Gender issues including the differential success of males and females in the regular education system, are of growing interest in many countries.

To deliver education for these students, most countries make additional resources available for schools. These usually take the form of extra teaching staff or assistants and other services, such as speech and language therapists and physiotherapists, alongside physical adaptations to buildings and equipment. Countries vary substantially in both the extent of these services and the location where they are delivered (special schools, special classes in regular schools, regular classes in regular schools and other locations).

EVIDENCE AND EXPLANATIONS

Proportion of students considered to be receiving additional resources

The possibility of making international comparisons of the numbers and proportions of students who have difficulty in accessing the curriculum because of disability, learning or behavioural difficulties and disadvantages has previously been hindered by a lack of agreement on definitions. Approaches based on counting the numbers of students in special schools, or on models of handicap based on medical categories, do not reflect the reality in many countries of increasing inclusion of students with disabilities in mainstream education, and of an appreciation that such medical models are of limited value in planning educational provision to meet the needs of students.

A tri-partite international taxonomy classifies those receiving additional resources in an internationally consistent way.

This indicator takes a different approach, by using data based on the additional resources made available to support students to access the curriculum, whatever the cause of the difficulty may be. Student numbers are thus identified for the purposes of comparison in terms of the additional public and/or private resources allocated to ensuring access. Nevertheless, it remains important to remember that this approach is still being developed.

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To provide a basis for comparisons, countries have now located their own national categories used to identify students with disabilities, learning difficulties and disadvantages within a simple, tri-partite international taxonomy. Category A in this taxonomy corresponds broadly to needs arising from impairing conditions; category B includes those experiencing learning or behaviour difficulties for no clear reason and category C covers students from disadvantaged backgrounds (see definitions below). The different frameworks that countries bring to bear in providing for these students were presented in Indicator C6 of *Education at a Glance* 1998. The analysis reveals that some countries include only students with medical disabilities, or category A students, in their national categories (*e.g.*, the Czech Republic, Italy) while Turkey and Spain include gifted and talented and yet others include those who are disadvantaged in various ways (*e.g.* Switzerland).

Category A corresponds broadly to needs arising from impairing conditions; category B includes those experiencing difficulties in learning for no clear reason and category C covers students from disadvantaged backgrounds.

Different countries identify very different proportions of students in categories A, B, and C as being in need of additional support even though some of the variation may be due to some differences in the way the categories are interpreted. Chart C6.1 show the substantial differences between countries in terms of the proportion of students identified as receiving additional resources to help them access the curriculum. The proportion of students receiving additional resources ranges from 35 per cent of all students in primary and lower secondary education to less than 1 per cent. Where possible data are shown for cross-national categories A, B and C separately as proportions of all students in primary and lower secondary education. In countries with high proportions of students receiving additional resources, most of them are classified in cross-national category C. *Education at a Glance* 1998 (Table C6.5) provided a proxy of the extent of the additional resources provided through improved student to teacher ratios. For category A students, ratios ranged from 2.3 to 8.6 for students in special schools and 1.7 to 10.7 in special classes in regular schools. These figures may be contrasted with ratios in regular classes ranging from 9.5 to 27.9. Thus is it clear that the additional resources provided may be substantial and act as a positive discrimination for students with the greatest difficulties.

The proportion of students receiving additional resources ranges from 35 per cent of all students in primary and lower secondary education to less than 1 per cent.

Location of students with disabilities, learning, behavioural or emotional difficulties, and disadvantages

There is particular policy interest in the place or location of the education of students with disabilities. Chart C6.2 shows where these students (classified as cross-national category A) are being educated, which may be in either special schools, special classes or regular classes. The differences are particularly striking with some countries having virtually no disabled students in special schools (*e.g.* Italy) while some others have over two-thirds in special schools (*e.g.* Finland, France, Greece, and the Netherlands). Debate continues over the desirability or otherwise of including category A students in regular schools, and this indicator responds to the need to monitor the changing situation.

There are striking differences between countries in terms of where disabled students in category A are educated, which may be in either special schools, special classes or regular classes.

The distribution of students receiving additional resources by location differs by categories. Table C6.3 reveals the distribution of students by location broken down by cross-national categories A, B and C.

Table C6.4 summarises data on special schools. Chart C6.3, shows the number of special schools per 100 000 of the total primary and lower secondary school population and reveals large variations between countries (*e.g.* 1.6 in Italy versus 72.4 in the Czech Republic).

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Chart C6.2. **Distribution of students in cross-national category A (impairments), by location (1996)**

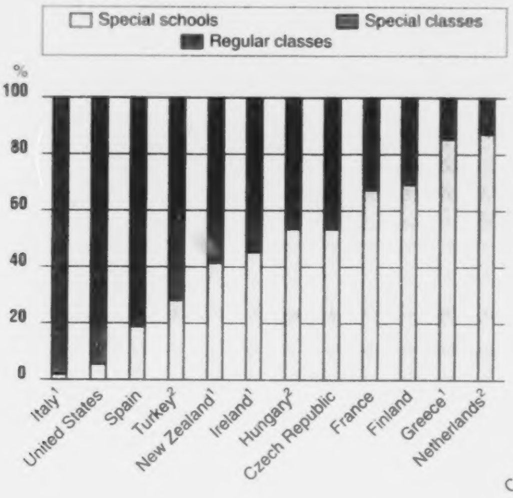


Chart C6.3. **Number of special schools per 100 000 of total primary and lower secondary school population (1996)**

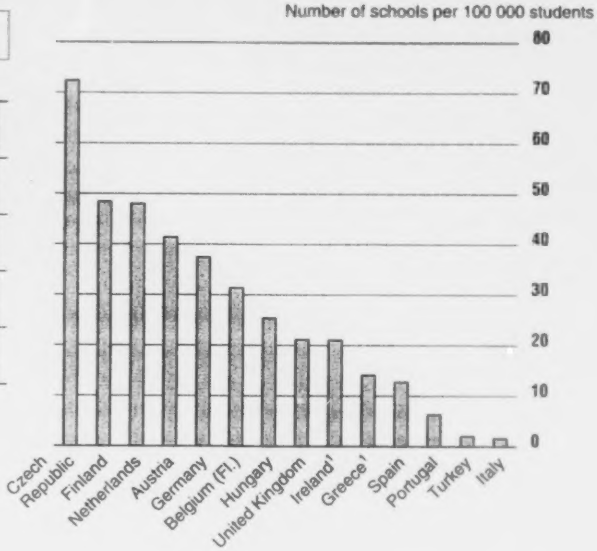
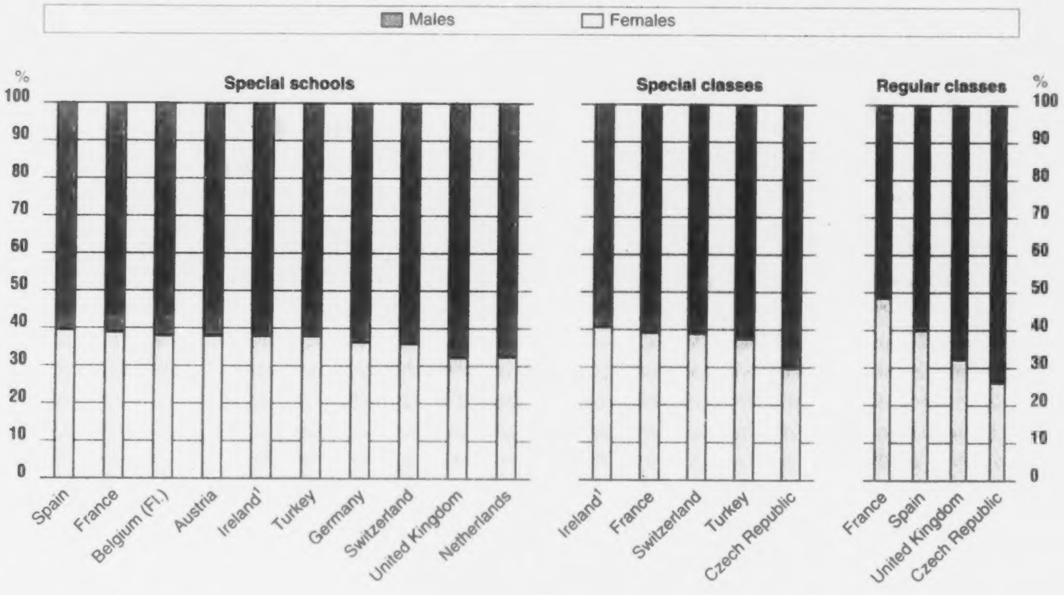


Chart C6.4. **Proportions of students receiving additional resources in different locations, by gender (1996)**



1. Public institutions only.
2. Coverage different for primary and lower secondary education.

Source: OECD.

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Gender differences

Chart C6.4 shows the proportions of male and female students who are receiving additional resources to help them access the curriculum in special schools, special classes and regular classes. Two points are especially noteworthy. First, in all countries where data are available, the proportion of males exceeds the proportion of females. In special schools and special classes males comprise between 60 to 70 per cent, although there is more variability in regular classes. For instance, in France, the number of males and females is almost equal which may be contrasted with the Czech Republic where nearly 74 per cent are males (see Table C6.5).

In all countries where data are available the proportion of males exceeds the proportion of females.

DEFINITIONS

Students with disabilities, learning or behaviour difficulties and disadvantages are identified through the additional public and/or private resources provided to support their education. "Additional resources" are those made available over and above the resources generally available for students who have no difficulties in accessing the regular curriculum. Resources can be of many different kinds. Examples are: personnel resources (more favourable teacher student ratio, additional teachers), material resources (aids or supports (*e.g.* hearing aid), adaptations to classrooms, specialised teaching materials), and financial resources.

Data are from a special OECD survey on students receiving additional resources to access the curriculum, which was undertaken between 1998 and 1999.

Figures based on national categories covering students with disabilities, learning difficulties and disadvantages, as used by countries, have been aggregated into cross-national categories A, B and C.

- Category A refers to educational needs of students where there is substantial normative agreement – such as blind and partially sighted, deaf and partially hearing, severe and profound mental handicap, multiple handicaps.
- Category B refers to educational needs of students who have difficulties in learning which do not appear to be directly or primarily attributable to factors which would lead to categorisation as A or C.
- Category C refers to educational needs of students which are considered to arise primarily from socio-economic, cultural and/or linguistic factors.

Special schools are defined as segregated settings, separately administered from regular or mainstream schools. Special classes are classes or units attached to regular schools.

The percentage of students in need of additional resources in Table C6.1 is calculated by dividing the number of such students by the total number of students in primary and lower secondary education (times 100). In anomalous cases, *e.g.* where some students in primary and lower secondary education are excluded, or where students from pre-primary or upper secondary education are included, the data used to calculate the percentages are appropriately adjusted. The figures for students in need of extra support are based on full-time study.

Data refer to the school year 1995/96. With the exception of Finland where the data cover 1994/95, France 1994 to 1998, and Belgium (Flemish Community), Italy, the Netherlands, Spain and Switzerland where data cover 1996/97. The figures are based on both public and private institutions, unless otherwise indicated (see Annex 3).

Table C6.1. Number of students in cross-national categories A, B and C receiving additional resources as a percentage of all students in primary and lower secondary education and of all students receiving additional resources

Based on head counts (1996)

	As a percentage of all students in primary and lower secondary education				As a percentage of all students receiving additional resources			
	Total % of all students	Cross-national category A	Cross-national category B	Cross-national category C	Total number of resourced students	Cross-national category A	Cross-national category B	Cross-national category C
Austria	m	1.33	2.01	m	25 592	39.8	60.2	m
Belgium (Fl.)[1, 2]	9.32	x	x	x	82 024	m	m	m
Czech Republic	8.20	8.20	a	a	88 884	100.0	m	m
Finland[2]	16.00	1.04	13.26	1.70	93 985	6.5	82.8	10.6
France[1, 2, 3]	18.07	2.53	2.14	13.40	1 358 577	14.0	11.8	74.2
Germany	4.31	1.45	2.86	a	391 118	33.6	66.4	a
Greece[4]	1.23	0.37	0.86	a	12 776	30.0	70.0	a
Hungary[1]	16.19	5.10	a	11.08	173 312	31.5	a	68.5
Ireland[3, 4]	19.72	2.57	6.68	10.48	111 979	13.0	33.9	70.1
Italy[2, 4]	2.13	2.13	a	a	93 511	100.0	a	a
Korea[3]	1.50	x	x	x	92 895	m	m	m
Netherlands[1, 2, 3]	33.53	1.77	3.49	28.27	796 761	5.3	10.4	84.3
New Zealand[3, 4]	1.95	0.90	1.05	m	10 683	46.1	53.9	m
Portugal	m	3.01	m	m	40 317	100.0	m	m
Spain[2]	4.03	2.56	0.74	0.73	154 175	63.5	18.4	18.1
Switzerland[2]	5.80	1.62	3.76	0.42	44 874	28.0	64.8	7.2
Turkey[1]	0.41	0.41	a	a	26 535	100.0	a	a
United Kingdom	2.56	x	x	x	172 154	m	m	m
United States[3]	35.5	5.62	8.43	21.4	12 740 790	15.8	23.7	60.3

1. Coverage different for primary and lower secondary education
2. Year of reference different from 1996
3. Some figures are estimates
4. Public institutions only

Source: OECD Education Database. See Annex 3 for notes.

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Table C6.2. **Numbers of students receiving additional resources as a percentage of all students in primary and lower secondary education and percentage of students in cross-national category A by location (1996)**

	Students receiving additional resources as a percentage of all students in primary and lower secondary education			Distribution of students in cross-national category A by location		
	Students in special schools	Students in special classes	Students in regular classes	Students in special schools	Students in special classes	Students in regular classes
Austria	2.05	m	m	67.45	3.15	29.40
Belgium (Fl.)[1, 2]	4.44	0.09	4.79	m	a	m
Czech Republic	4.38	1.00	2.81	53.49	12.26	34.25
Finland[2]	1.93	1.05	13.02	69.20	26.45	4.35
France[1, 2, 3]	3.19	1.35	14.44	67.46	26.30	6.24
Germany	4.31	x	m	m	x	m
Greece[4]	0.32	0.89	0.02	85.37	8.93	5.69
Hungary[1]	2.73	1.12	12.34	53.47	21.87	24.66
Ireland[3, 4]	1.33	0.40	17.99	45.19	15.70	39.16
Italy[2, 4]	0.04	n	2.08	1.86	0.19	97.95
Korea[3]	0.34	0.42	0.74	m	m	m
Netherlands[1, 2, 3]	5.03	2.53	25.98	87.20	a	12.80
New Zealand[3, 4]	0.43	m	m	42.97	26.84	30.19
Portugal	0.56	m	m	18.72	3.01	78.27
Spain[2]	0.48	x	3.55	18.83	x	81.17
Switzerland[2]	1.62	4.17	m	m	m	m
Turkey[1]	0.12	0.14	0.16	28.28	32.91	38.81
United Kingdom	1.08	x	1.47	a	a	a
United States[3]	m	m	m	5.52	24.52	69.97

1. Coverage different for primary and lower secondary education
2. Year of reference different from 1996
3. Some figures are estimates
4. Public institutions only

Source: OECD Education Database. See Annex 3 for notes.

Table C6.3. **Percentage distribution of students receiving additional resources between cross-national categories A, B and C, by location (1996)**

	Special schools			Special classes in regular schools			Regular classes in regular schools		
	Cross-national category A	Cross-national category B	Cross-national category C	Cross-national category A	Cross-national category B	Cross-national category C	Cross-national category A	Cross-national category B	Cross-national category C
Austria	43.8	56.2	n	m	m	m	m	m	m
Czech Republic	100.0	a	a	100.0	a	a	100.0	a	a
Finland[1]	37.3	62.7	n	26.3	73.7	n	0.3	86.6	13.1
France[1, 2, 3]	53.5	46.5	a	47.9	47.0	5.0	1.1	a	98.9
Germany	33.6	66.4	a	x	x	x	m	m	m
Greece[4]	99.8	0.2	n	3.7	96.3	a	100.0	n	n
Hungary[2]	100.0	n	n	100.0	n	n	10.2	n	89.8
Ireland[3, 4]	87.5	6.4	6.1	100.0	n	n	5.6	36.6	76.4
Italy[1, 4]	100.0	a	a	100.0	a	a	100.0	a	a
Korea[3]	96.7	n	3.3	m	m	m	m	m	m
Netherlands[1, 2, 3]	30.6	69.4	a	a	100.0	a	0.9	a	99.1
New Zealand[3, 4]	89.3	10.7	n	m	m	m	m	m	m
Portugal	100.0	n	n	m	m	m	m	m	m
Spain[1]	100.0	a	a	100.0	a	a	58.5	20.9	20.5
Switzerland[1]	100.0	n	n	n	90.0	10.0	n	m	m
Turkey[2]	100.0	n	a	100.0	n	a	100.0	a	a

1. Year of reference different from 1996
2. Coverage different for primary and lower secondary education
3. Some figures are estimates
4. Public institutions only

Source: OECD Education Database. See Annex 3 for notes.

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Table C6.4. **Number of special schools, number relative to the total school population, their average size and the percentage of private special schools (1996)**

	Number of special schools	Number of special schools per 100 000 primary and lower secondary students	Average size of special school	Percentage of private special schools
Austria	317	41.4	49.4	3.8
Belgium (Fl.)[1, 2]	313	31.4	124.9	65.8
Czech Republic	785	72.4	60.6	6.5
Finland	285	48.4	39.6	1.4
Germany	3 397	37.4	115.1	15.7
Greece[1, 3]	147	14.1	21.9	m
Hungary	271	25.3	107.8	1.1
Ireland	119	21.0	63.3	a
Italy[2]	71	1.6	24.5	0.3
Netherlands[2]	946	48.0	m	m
Portugal[1, 4]	85	6.3	88.8	m
Spain[2]	491	12.8	37.6	59.1
Turkey[1]	128	2.0	58.6	4.7
United Kingdom	1 565	21.1	73.1	7.0

1. Coverage different for primary and lower secondary education.
2. Year of reference different from 1996.
3. Public institutions only.
4. Some figures are estimates.

Source: OECD Education Database. See Annex 3 for notes.

Table C6.5. **Number of students receiving additional resources in different locations (special schools, special classes in regular schools, regular classes in regular schools) by gender (1996)**

	Special schools			Special classes			Regular classes	
	Males	Females		Males	Females		Males	Females
Austria	62.1	37.9	Czech Republic	70.2	29.8	Czech Republic	73.9	26.1
Belgium (Fl.)[1, 2]	62.0	38.0	France[2, 4]	60.8	39.2	France[2, 4]	51.6	48.4
France[1, 2]	61.3	38.7	Ireland[3]	59.4	40.6	Spain[2]	60.2	39.8
Germany	63.6	36.4	Switzerland[2]	61.1	38.9	United Kingdom	67.8	32.2
Ireland[3]	62.1	37.9	Turkey	62.5	37.5			
Netherlands[2, 4]	67.6	32.4						
Spain[2]	60.6	39.4						
Switzerland[2]	64.2	35.8						
Turkey	62.1	37.9						
United Kingdom	67.8	32.2						

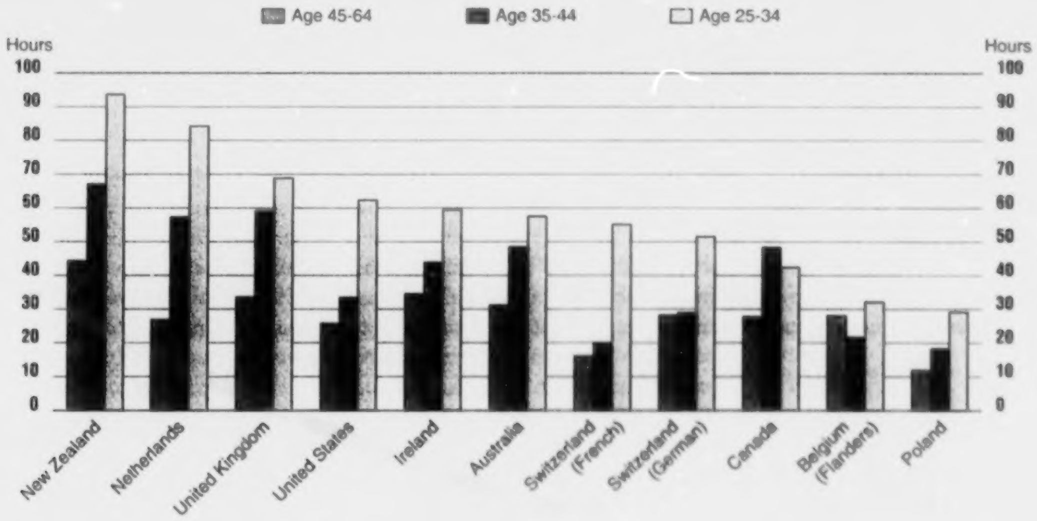
1. Coverage different for primary and lower secondary education.
2. Year of reference different from 1996.
3. Public institutions only.
4. Some figures are estimates.

Source: OECD Education Database. See Annex 3 for notes.

PARTICIPATION IN SKILL IMPROVEMENT TRAINING AMONG THE EMPLOYED POPULATION

- Training hours per employee range from 20 in Poland to over 53 in the Netherlands, New Zealand and the United Kingdom.
- In all except one reporting countries every fifth employee participated in some job-related training within a 12-month period.
- People who got the most formal education are also more likely to receive training as adults: three times as many training hours are invested in employees with a tertiary qualification than in employees with less than an upper-secondary qualification.
- A lack of interest remains the biggest barrier in increasing the participation in job-related training.

Chart C7.1. **Mean number of hours of job-related CET per employee and year, by age (1994-1995)**



CET: Continuing education and training.
Mean number of hours per employee = Mean number of hours in job-related CET per participant * Participation rate/100.
Countries are ranked in descending order of the hours per participant at the age 25 to 34.
Source: OECD and Statistics Canada/IALS.

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POLICY CONTEXT

The education and training of workers is the most effective means of maintaining and upgrading the skills of the current labour force.

As a skilled labour force is a prerequisite for success in today's economy, the education and training of current workers is likely to be the most effective means of maintaining and upgrading the skills of the current labour force. In the face of changing technologies, work methodologies and markets, policy-makers in many countries are encouraging enterprises to invest more in training, as well as promoting more general work-related training by adults.

This indicator presents data on participation and intensity of participation in job-related or career-related continuing education and training (CET) among the full-time, full-year employed population. The data are restricted to employees who are 25 to 64 years old; working students are excluded. This indicator focuses on full-time/full-year workers in order to capture more effectively training opportunities for those who have a strong attachment to the labour force.

EVIDENCE AND EXPLANATIONS

Participation and duration of job-related training activities

In all except one reporting country every fifth employee participated in some job-related training within a 12-month period.

In all except one reporting country every fifth employee participated in some job-related training within a 12-month period. Participation rates in job-related continuing education and training by full-time, full-year workers range from 24 per cent or below in Belgium (Flanders), Ireland and Poland to about double that rate or above in New Zealand, the United Kingdom and the United States. But there appears to be a trade-off between participation rates and hours of training received. Although the United Kingdom and the United States have above average participation rates, the duration of training tends to be quite low. By contrast, low participation rates in Ireland and the Netherlands are balanced by relatively high duration of participation (see Chart C7.2 and Table C7.1).

Training hours per employee range from 20 in Poland to over 53 in the Netherlands, New Zealand and the United Kingdom.

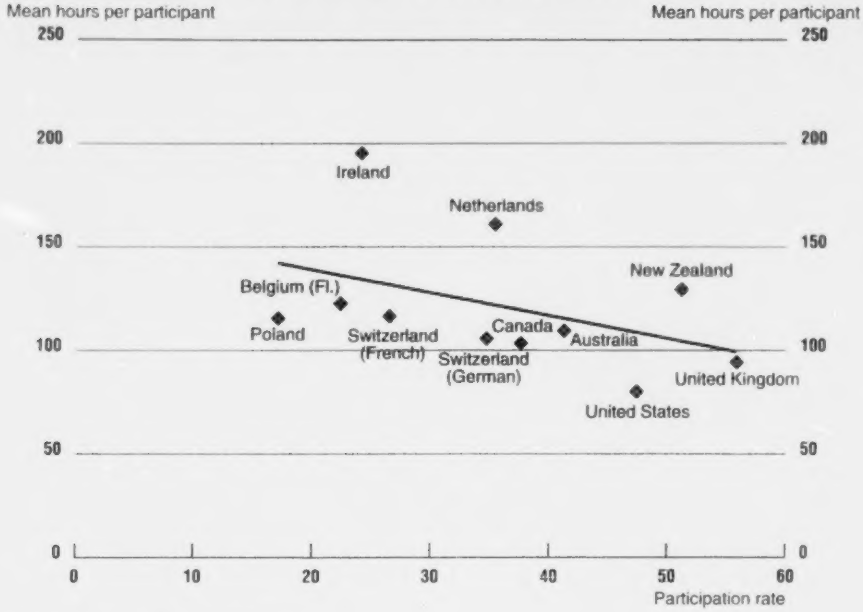
Because of the wide variation in participation rates and hours of participation between countries, a more comprehensive measure of the effort which countries invest in the improvement and maintenance of employee's skills is required. Multiplying the participation rage by the average hours spent in participation results in the training hours relative to the size of the employed population (see Chart C7.1). Training hours per employee range from 20 in Poland to over 53 in the Netherlands, New Zealand and the United Kingdom. This measure improves the relative standing of Ireland and the Netherlands, although it should be reiterated that these hours of training are concentrated on fewer employees than in other countries.

Participation rates by gender

Female employees are just as likely as men, and in some cases more likely, to participate in job-related CET.

In each of the countries for which data are available from IALS, female employees were just as likely, and in some cases more likely, to participate in job-related CET than men. In Ireland, New Zealand and the United Kingdom female participation rates were about 10 per cent higher than male participation rates. Among participants, there was no measurable gender difference in the number of hours of participation, with the exception of the French-speaking population of Switzerland, where men participated longer, on average, than women (Table C 7.1).

Chart C7.2. **Participation rates *versus* hours of training in job-related CET (1994-1995)**



CET: Continuing education and training.
Source: OECD and Statistics Canada/IALS.

This chart presents the two factors that underlie the mean number of hours in job-related training per employee: participation rates and the number of hours per participant. There appears to be a trade-off between these two factors.

Participation rates by age

In five out of ten countries, younger employees were considerably more likely than older employees to participate in job-related CET. Among those participating in training, younger employees participated for a longer period of time than older employees in nine out of ten countries (Table C7.1). The impact of these two tendencies is reflected most clearly in the amount of training hours relative to the number of full-time, full-year employees (Chart C7.1). The most marked variability in training hours per employee are in New Zealand, the Netherlands, the French-speaking population of Switzerland, the German-speaking population of Switzerland and the United States.

More training hours are allocated to younger than to older workers.

Participation rates by educational attainment

As was the case with the wider adult population (see Indicator C5 in *Education at a Glance* 1998), participation rates in job-related CET rise with both educational attainment and the literacy skills of the full-time, full-year employed population (Table C7.4). On average across countries participating in the IALS study, 21 hours of CET are invested in each employee with less than an upper-secondary qualification, 35 hours among those with an upper-secondary qualification and over 50 hours among those with a tertiary qualification.

Three times as many training hours are invested in employees with a tertiary qualification than in employees without an upper-secondary qualification.

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Participation in job-related training by industry and firm size

Employees in personal service industries received more training than employees in goods-producing industries.

Fewer hours were invested in employees in goods-producing industries (on average across the countries participating in IALS) than in personal service industries. Although 30 hours of job-related CET were invested per employee in primarily manufacturing and construction and 36 hours per employee in sales/transportation/ business services, over 60 hours per employee were invested in their colleagues in community and personal services.

Employees in large firms receive, on average, more training hours than employees in small firms.

In six out of seven of the countries for which data on firm size are available in IALS, considerably fewer hours are invested per employee in firms with less than 500 employees. The exception to this is New Zealand, where the drop-off in hours per employee occurs most dramatically in firms with less than 20 employees.

Employer support for job-related training

Employers financially support more job-related training courses than do employees, although employees tend to spend more time in courses that they financially support themselves.

In general, employers provide at least some support for about two-thirds of job-related courses taken by full-time, full-year employees, while employees contribute financially to between a fifth and a quarter of the courses they take. Exceptions to this pattern include the United Kingdom, where employers financially support the vast majority of courses (84 per cent) while the participant financially supports relatively few courses (9 per cent); and Australia where 74 per cent of courses are financially supported by employees and 20 per cent by the employer (Table C7.2).

With some exceptions, participation rates in job-related CET are generally higher in countries where employers financially support a larger proportion of job-related courses.

Employers and employees share responsibility for suggesting that training be taken.

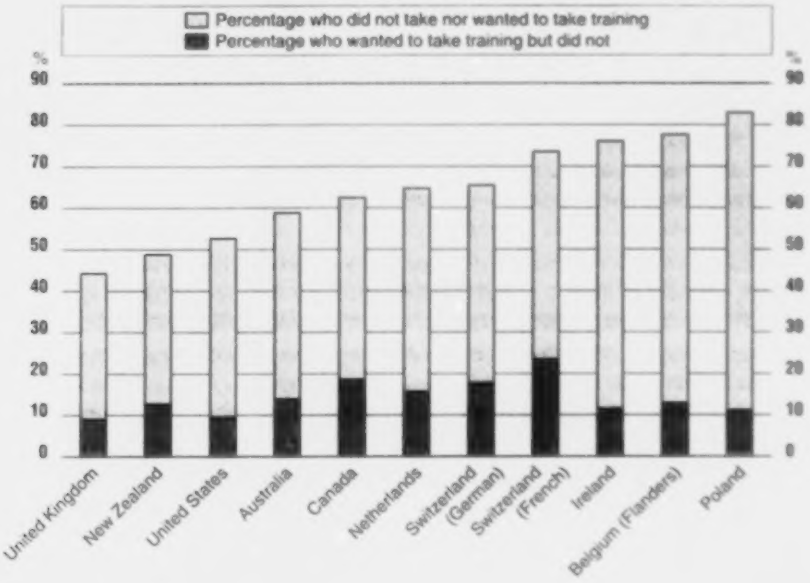
Between 60 and 75 per cent of employer-supported courses were originally suggested by the employer, although the employees suggested the training themselves over 50 per cent of the time in Belgium (Flanders) and among the French and German-speaking populations of Switzerland. The employer and employee jointly suggested taking employer-supported training courses in over a fifth of the cases in New Zealand and French and German-speaking populations of Switzerland (Table C7.6).

With regard to courses taken without financial support from employers, the original idea for taking the course came from the employee more than two-thirds of the time in most countries. In some countries, however, employers played a strong role in recommending courses even without financially supporting them. In Belgium (Flanders), Ireland, and Poland more than 30 per cent of job-related training courses were not paid for by the employer, although they were taken at the employer's suggestion (Table C7.6).

Employees who have participated in job-related CET feel that they are using the skills acquired in the their jobs.

Employees indicated that they are using the skills or knowledge acquired in job-related CET for between eight and nine out of ten courses taken and "to a great extent" for between three and seven out of ten courses taken. Skills acquired through training taken both with and without employer financial support were being applied to a similar degree in the workplace (Table C7.5).

Chart C7.3. **Percentage of the population 25 to 64 years of age that did not participate in continuing education and training in the previous year (1994-1995)**



Source: OECD and Statistics Canada/IALS.

This chart shows the proportion of employees that did NOT participate in job-related training. Only a minority (indicated by dark blue bars) of non-participants were interested in participation but could not participate for several reasons.

Although the degree to which training is being applied in the workplace indicates that employees generally find the training taken valuable, there appears to be a lack of interest in job-related CET among non-participants. The majority of full-time, full-year workers in the countries participating in IALS did not take any job-related CET over a one year period in 1994/95. This proportion ranges from below 50 per cent of employees in New Zealand and the United Kingdom to over 75 per cent in Belgium (Flanders), Ireland and Poland. The percentage of employees who did not take any job-related CET but wanted to is comparatively small – between 15 and 30 per cent. This may be an indication that the forms of job-related training currently on offer are not regarded as valuable by non-participants. This perception may reflect either the content of the job-related CET currently being offered or the fact that employees are not fully aware of the training opportunities available to them (Table C7.7).

Among employees who did not participate in job-related CET, only between 15 and 30 per cent indicated that they had wanted to.

■ DEFINITIONS

In most countries the achieved national samples in IALS amounted to between 2 000 and 4 500 respondents. These sample sizes are relatively small for nationally representative surveys, and this necessarily limits the extent to which it is possible to analyse sub-groups within the population without encountering cell sizes that are too small to allow population parameters to be inferred with confidence. Each of the statistical comparisons made in this section have been tested for statistical significance. Standard errors for each of the tables have been calculated and are available from the OECD upon request.

Data are from the International Adult Literacy Survey (IALS), which was undertaken by Statistics Canada and OECD at the end of 1994 and in 1995.

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For the purpose of this analysis, the "employed" population is restricted to include persons aged 25 to 64 who have been employed at a job or business in the past 12 months and worked at least 42 weeks in the previous year (at all jobs including time off for vacation, maternity leave, illness, strikes, and lockouts and worked mostly full-time (more than 30 hours per week) and whose primary work status is not student.

The IALS background questionnaire records any participation in education or training during the 12 months preceding the survey. The Canadian survey, for example, asks: "During the past 12 months, that is since August 1993, did you receive any training or education including courses, private lessons, correspondence courses, workshops, on-the-job training, apprenticeship training, arts, crafts, recreation courses or any other training or education?" This is a very broad definition of education and training, covering a rather wider category of training types than in other surveys. Subsequent questions identify, in respect of up to three education or training courses taken during the previous 12 months, the type of education or training, financial sponsorship, duration of training and purpose of training. The latter question makes it possible to distinguish: *i)* education or training taken for "career or job-related purposes" (shown in this indicator as "job-related training"); and education or training taken for *ii)* "personal interest"; and *iii)* "other" reasons.

In this indicator, participation rates are calculated separately for "career or job-related purposes". Measures of incidence, however, offer an incomplete account of the amount or intensity of training, since the duration of training may vary independently of participation rates, both between countries and between population sub-groups. The mean number of hours per participant is the average number of total hours in the three most recent education or training courses/programmes taken (presumably during the previous 12 months). In the IALS background questionnaire, respondents were asked how many weeks, days per week and hours per day (on average) a particular course/programme lasted. Total hours were estimated by taking the product of the answers for these three questions.

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Table C7.1. Participation in job-related continuing education and training in the previous year by employed adults,[1] by age and gender (1994-95)

		Participation rate				Mean number of hours per trainee				Mean number of hours per employee[2]			
		25-34	35-44	45-64	All	25-34	35-44	45-64	All	25-34	35-44	45-64	All
Australia	M + W	45	44	35	41	127	110	89	110	58	48	31	45
	Men	44	42	33	39	137	116	90	115	60	49	30	45
	Women	49	48	39	46	109	98	86	99	53	47	34	45
Belgium (Flanders)	M + W	24	19	24	22	132	115	118	123	32	22	28	27
	Men	24	19	26	23	151	110	112	127	36	20	29	29
	Women	25	19	16	21	m	m	m	114	m	m	m	24
Canada	M + W	40	42	31	38	105	114	89	104	42	48	28	39
	Men	44	41	36	40	111	111	99	108	49	46	36	43
	Women	33	44	23	33	91	120	65	96	31	53	15	31
Ireland	M + W	27	25	20	24	221	177	174	196	59	44	34	47
	Men	22	21	17	20	140	m	m	158	31	m	m	31
	Women	35	33	30	33	294	m	m	242	102	m	m	81
Netherlands	M + W	39	39	28	35	216	146	97	161	84	57	27	57
	Men	40	38	27	35	221	110	97	149	89	41	26	52
	Women	35	47	30	37	203	280	m	205	71	131	m	75
New Zealand	M + W	54	53	47	51	173	125	94	130	94	67	44	66
	Men	51	51	42	48	179	114	109	134	91	58	46	64
	Women	61	59	55	58	163	147	77	124	99	87	42	72
Poland	M + W	18	18	14	17	160	101	83	116	29	18	12	20
	Men	18	18	14	17	130	112	83	112	24	20	12	19
	Women	18	18	14	17	m	88	84	121	m	16	12	21
Switzerland (French)	M + W	32	29	20	26	174	68	80	117	55	20	16	31
	Men	41	27	19	28	202	64	99	141	83	17	18	40
	Women	16	33	23	23	m	m	m	59	m	m	m	13
Switzerland (German)	M + W	40	33	31	35	129	89	91	106	52	29	28	37
	Men	40	34	33	35	155	78	89	111	62	27	29	39
	Women	41	29	26	33	81	m	m	95	33	m	m	31
United Kingdom	M + W	63	59	47	56	110	100	71	95	69	59	34	53
	Men	58	55	45	52	124	106	53	96	72	58	23	50
	Women	72	71	52	64	86	86	104	92	62	61	54	59
United States	M + W	48	49	46	47	130	68	56	80	62	33	26	38
	Men	44	50	45	46	160	75	61	92	71	37	27	43
	Women	53	48	47	49	96	59	51	66	51	28	24	32

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[1] Employed adults include 25 to 64 year-olds employed mostly full-time (more than 30 hours per week) at a job or business for at least 42 weeks in the past 12 months whose primary work situation is not student

[2] Mean number of hours per trainee * participation rate/100

Source OECD and Statistics Canada/International Adult Literacy Survey (IALS)

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Table C7.2. Percentage of job-related continuing education and training courses taken by employed adults that were financially supported, by sources (1994-95)

	Percentage of courses			Mean number of hours per course per employee	
	Employer-supported	Employee-supported	Government-supported	Employer-supported	Employee-supported
Australia	20	74	4	106	45
Belgium (Flanders)	66	25	11	105	140
Canada	70	29	9	81	124
Ireland	65	21	8	182	160
Netherlands	78	19	6	143	174
New Zealand	73	25	13	88	167
Poland	75	16	3	97	230
Switzerland (French)	61	33	14	71	113
Switzerland (German)	59	38	14	86	103
United Kingdom	84	9	4	82	152
United States	76	20	6	69	90

Source: OECD and Statistics Canada/International Adult Literacy Survey (IALS).

Table C7.3. Mean number of course hours per employee in job-related continuing education and training in the previous year, by industry, occupation and firm size (1994-95)

	Industry			Occupation			Firm size (number of employees)			
	Primarily manufacturing and construction	Sales, transportation, business services	Community and personal services	Professionals and managers	Clerks, services, sales	Craftsmen, operators, assemblers	Less than 20	20 to 99	100 to 499	500 or over
Australia	29	40	71	57	39	30	20	37	53	147
Belgium (Flanders)	20	17	44	53	29	6	m	m	m	m
Canada	30	39	45	44	29	38	39	33	20	117
Ireland	27	26	101	82	32	22	m	m	67	385
Netherlands	42	52	80	67	45	43	m	m	m	m
New Zealand	45	59	105	89	48	52	36	89	113	118
Poland	11	15	34	44	6	12	7	32	22	93
Switzerland (French)	21	36	20	46	14	16	28	m	30	127
Switzerland (German)	33	33	52	46	36	23	27	m	41	111
United Kingdom	36	52	77	71	47	20	26	31	46	107
United States	33	32	48	52	30	25	23	29	35	67

Source: OECD and Statistics Canada/International Adult Literacy Survey (IALS).

Table C7.4 **Participation in job-related continuing education and training in the previous year by employed adults by highest level of educational attainment (1994-95)**

	Highest level of educational attainment							
	Participation rate				Mean number of hours per trainee			
	Below upper secondary education	Upper secondary education	Non-university tertiary education	University education	Below upper secondary education	Upper secondary education	Non-university tertiary education	University education
Australia	30	38	50	60	102	93	138	122
Belgium (Flanders)	8	23	36	41	m	142	124	114
Canada	21	28	49	56	68	90	134	105
Ireland	16	24	32	41	214	207	m	135
Netherlands	24	37	a	49	129	209	a	127
New Zealand	41	53	62	69	137	117	129	132
Poland	9	24	25	33	103	86	m	141
Switzerland (French)	7	26	45	37	m	90	117	187
Switzerland (German)	11	37	44	45	m	102	139	93
United Kingdom	44	59	69	79	80	97	131	99
United States	19	35	57	70	92	68	93	83

Source OECD and Statistics Canada/International Adult Literacy Survey (IALS)

Table C7.5 **Extent of use at work of job-related education and training taken by employed adults, by source of financial support (1994-95)**

	Training with financial support from employer				Training with no financial support from employer			
	To a great extent	To some extent	Very little	Not at all	To a great extent	To some extent	Very little	Not at all
Australia	55	33	9	3	55	31	8	7
Belgium (Flanders)	57	27	15	1	59	15	18	8
Canada	64	26	7	4	73	9	6	12
Ireland	72	24	3	1	73	20	3	3
Netherlands	67	31	n	3	57	33	n	10
New Zealand	60	30	8	3	52	33	6	9
Poland	34	45	17	4	43	34	16	6
Switzerland (French)	51	38	11	n	56	31	13	n
Switzerland (German)	61	30	9	n	58	32	7	2
United Kingdom	53	33	10	5	48	33	11	8
United States	63	29	4	4	55	30	11	4

Source OECD and Statistics Canada/International Adult Literacy Survey (IALS)

Table C7.6 **Source of suggestion for participation in training or education that was taken by employed adults, by source of financial support (1994-95)**

	Training with financial support from employer			Training with no financial support from employer		
	Employer	Self-suggested	Both self-suggested and employer	Employer	Self-suggested	Both self-suggested and employer
Australia	70	32	7	16	73	2
Belgium (Flanders)	75	56	12	33	73	4
Canada	59	46	14	10	82	6
Ireland	61	35	n	30	64	n
Netherlands	59	34	4	8	68	n
New Zealand	71	44	20	18	86	9
Poland	72	34	14	41	55	13
Switzerland (French)	62	60	28	6	88	3
Switzerland (German)	60	60	24	17	88	9
United Kingdom	70	29	6	23	65	n
United States	69	35	10	20	70	2

Source OECD and Statistics Canada/International Adult Literacy Survey (IALS)

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Table C7.7. Perceived barriers to participation in job- or career-related continuing education and training among employed adults, by gender (1994-95)

		Percentage who did not take job-related training in the past year	Among those who did not take training, percentage who wanted to participate	Percentage of non-participants in job-related training who gave various reasons for not taking job-related continuing education and training that they wanted to take										
				Situational barriers				Institutional barriers				Dispositional barriers		
				Too busy/lack of time	Too busy at work	Family responsibilities	Lack of employer support	Course not offered	Too expensive/no money	Lack of qualifications	Inconvenient time	Language	Health	Other
Australia	M + W	59	24	52	14	6	5	6	18	2	6	2	1	6
	Men	61	23	55	15	4	7	5	16	1	6	2	n	5
	Women	54	25	45	12	10	2	8	25	2	5	2	2	7
Belgium (Flanders)	M + W	78	16	59	19	7	5	1	7	2	4	3	n	10
	Men	77	15	58	18	6	7	2	10	3	1	3	n	11
	Women	79	20	60	21	11	2	n	2	n	9	3	n	8
Canada	M + W	62	30	53	11	21	9	6	21	2	10	n	n	14
	Men	60	30	56	11	16	12	9	21	3	10	n	n	11
	Women	67	30	46	11	30	4	3	21	1	9	n	n	17
Ireland	M + W	76	15	40	21	11	4	12	24	3	7	n	n	2
	Men	80	14	34	18	9	6	14	26	4	9	n	n	2
	Women	67	19	51	26	13	n	7	20	n	3	n	n	3
Netherlands	M + W	65	24	54	17	6	10	5	13	1	6	n	3	13
	Men	65	22	54	17	5	11	6	14	1	6	n	4	10
	Women	63	31	56	17	8	6	3	12	1	5	n	1	24
New Zealand	M + W	49	26	65	66	28	9	10	25	4	38	1	2	16
	Men	52	21	71	70	26	5	9	21	3	37	n	1	13
	Women	42	37	57	59	32	16	11	31	7	39	1	3	19
Poland	M + W	83	13	43	19	17	11	14	25	1	6	1	5	17
	Men	83	15	44	22	15	8	15	21	1	7	n	5	21
	Women	83	12	42	16	20	16	12	31	2	4	2	5	12
Switzerland (French)	M + W	74	32	44	21	4	9	11	18	3	7	0	2	13
	Men	72	29	43	27	3	9	12	16	3	6	n	2	11
	Women	77	37	46	13	6	8	10	20	2	7	1	2	17
Switzerland (German)	M + W	65	27	48	21	6	13	18	11	1	7	2	1	20
	Men	65	26	51	19	5	12	19	7	1	6	3	1	23
	Women	67	30	41	23	8	14	15	19	n	10	n	n	15
United Kingdom	M + W	44	20	37	22	8	17	13	25	1	17	n	2	11
	Men	48	21	38	24	3	15	14	22	n	16	n	1	10
	Women	36	19	32	18	23	23	10	33	6	19	n	5	12
United States	M + W	53	18	53	24	13	7	3	30	n	7	1	2	3
	Men	54	18	52	21	8	5	4	32	n	5	1	2	5
	Women	51	19	55	28	19	9	2	27	1	9	n	3	1

Source OECD and Statistics Canada/International Adult Literacy Survey (IALS)

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THE LEARNING ENVIRONMENT AND ORGANISATION OF SCHOOLS

D

How do the inputs into the education system translate into educational results? While the resources invested in education and the results of education in terms of student achievement and labour market outcomes are discussed in earlier and later chapters respectively, this chapter presents some indicators that clarify the process of transforming educational inputs into outputs.

The indicators presented refer to the functioning of education systems and schools, and to the learning environment they offer. They include information on teachers' salaries, pre-service training requirements, and teachers' working hours. Moreover, they provide information on student absenteeism, decision-making authority, and the availability and use of modern technology at school.

The level of teachers' salaries can affect the entry of new teachers, the retention of current teachers, and the motivation of teachers for their job. **Indicator D1** examines the level of starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education. The salaries are presented in equivalent US dollars adjusted for cross-national differences in purchasing power, relative to per capita GDP, and relative to salaries of other workers. This allows to examine the absolute volume of resources invested in each teacher, the investment in teachers relative to a country's ability to finance educational expenditure, and the financial attractiveness of the teaching profession across countries and compared to other occupations.

Pre-service training requirements for teachers can be expected to influence the quality of their teaching. **Indicator D2** first examines the current pre-service training requirements for new teachers. A distinction is made between academic training on the subject matter and professional or practical training, and whether both are taught concurrently or consecutively. Since training requirements have changed substantively over the last decades, not all active teachers today meet the most recent requirements. At the example of 8th-grade teachers in mathematics, Indicator D2 therefore also presents the highest level of formal education of currently active teachers and how it is distributed across different age groups.

Teachers' working time is an issue of major importance for both the financing of education and the attractiveness of the teaching profession. **Indicator D3** examines the different countries' requirements with respect to the number of teaching hours full-time teachers are expected to teach at different levels of education, with respect to the amount of time they are supposed to spend at school, and with respect to the time spent on different non-teaching tasks they are responsible for.

While Indicator D3 shows the time teachers are intended to spend at school, **Indicator D4** examines this question for students. Instruction time is the main resource invested in the educational process and can be supposed to have a major impact on learning achievement. Indicator D4 shows the intended instruction time (in hours per year) for grades in which the majority of pupils are between 12 and 14 years of age. Differentiation between subjects allows us to identify the major focus of instruction in different countries.

While the time students are intended to spend in school is covered by Indicator D4, **Indicator D5** examines student absenteeism. High levels of student absenteeism can have an impact on students' ability to learn. Data from 8th-grade mathematics students allow us to compare the achievement of pupils in schools with lower and higher rates of absenteeism, and the different rates of absenteeism at the national level.

Another important factor in educational policy is the division of responsibilities between national, regional and local authorities, as well as schools. Placing more decision-making authority at lower levels has been a key aim in the restructuring and systemic reform of the educational system in many countries since the early 80s. At the same time there are also frequent examples of strengthening the influence of the central level in certain domains. **Indicator D6** presents the decision-making structure of OECD countries with respect to decisions related to the curriculum in lower secondary education. It further indicates the sharing of decision-making power within schools concerning curriculum and school organisation.

OECD economies are increasingly dependent on technological knowledge and skills in the labour force. Students with little or no exposure to information technology in school may face difficulties in making a smooth transition into the modern labour market. While the issue of how computers should be used by students and teachers so as to maximise students' learning is a matter of debate, measures of student access to information technology can be an indicator of how well schools are responding to technological change. **Indicator D7** shows cross-country comparisons of the number of students per computer, of students' access to e-mail and Internet, and of the different ways students are guided to make use of information technology.

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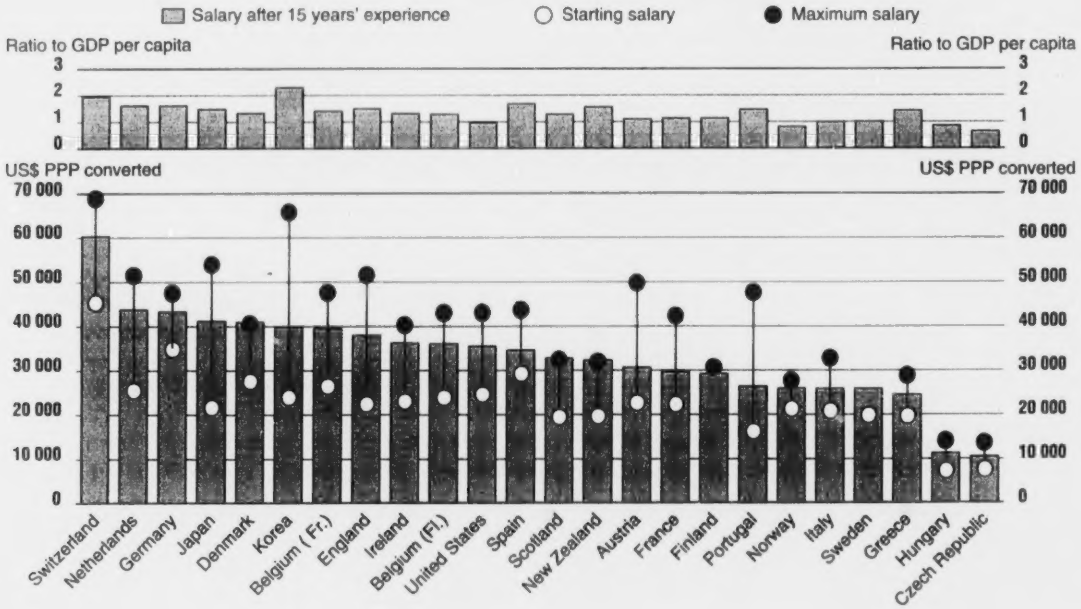
STATUTORY SALARIES OF TEACHERS IN PUBLIC PRIMARY AND SECONDARY SCHOOLS

- Starting salaries and mid-career salaries are lowest relative to per capita GDP in the Czech Republic, Hungary and Norway for both primary and secondary teachers.
- Starting and mid-career salaries relative to per capita GDP are highest for public primary and secondary teachers in Korea and Spain, as well as in Switzerland for general upper secondary teachers.
- In Korea the salaries of teachers are approximately 1.7 times per capita GDP at the beginning of their career and 2.7 times per capita GDP after 15 years of experience.

Chart D1.1. **Annual statutory teachers' salaries in public institutions at the upper secondary level, general programmes (1998)**



Countries are ranked in descending order of salary after 15 years' experience.
Source: OECD.

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POLICY CONTEXT

This indicator shows the starting, mid-career and maximum statutory salaries of teachers in public primary and secondary education.

Teachers' salary levels can affect both the desirability of entering the teaching profession and the ability of schools to retain the most skilled teachers. Ensuring that there will be enough skilled teachers to educate all children is an important policy concern in all OECD countries. Teachers' salaries are also the single largest factor in the cost of providing education. The size of education budgets reflects either an explicit or implicit trade-off between a number of interrelated factors, including statutory teachers' salaries, student/teaching staff ratios (Indicator B7), the quantity of instructional time planned for students (Indicator D4), and the designated number of teaching hours (Indicator D3).

Statutory salaries of teachers are compared in absolute terms with GDP per capita and with salaries of other workers.

This indicator examines the starting, mid-career and maximum statutory salaries of teachers with the minimum level of qualifications required to be certified as a teacher of public primary and secondary education. First, statutory salaries are examined in relation to GDP per capita. This is a rough measure of investment in teachers relative to a country's ability to finance educational expenditure. Second, statutory salaries are examined in comparable US dollars (adjusted for relative purchasing power) in order to determine the absolute volume of resources invested in each teacher. The salaries of teachers are then compared with the salaries of other workers, particularly those holding an ISCED 5A qualification, in order to examine the competitiveness of teaching relative to other occupations.

Statutory salaries of teachers relative to GDP per capita

Statutory salaries for teachers relative to GDP per capita are an indication of the extent to which a country invests in teaching resources, relative to the financial ability to fund educational expenditure. High salaries relative to GDP per capita suggests that a country is making more of an effort to invest its financial resources in teachers.

Statutory salaries for teachers are relatively low in the Czech Republic, Hungary and Norway and relatively high in Korea, Spain and Switzerland.

Starting salaries and mid-career salaries are lowest relative to GDP per capita in the Czech Republic, Hungary and Norway for both primary and secondary teachers (Chart D1.1). Starting and mid-career salaries relative to GDP per capita are highest for public primary and secondary teachers in Korea and Spain, as well as in Switzerland for public lower and general upper secondary teachers. In Korea, the teachers' salaries are approximately 1.7 times GDP per capita at the beginning of their careers and 2.7 times GDP per capita after 15 years' experience.

The relationship between teachers' salaries and per capita wealth is not straightforward.

Although the Czech Republic and Hungary have both relatively low GDP per capita and low teachers' salaries, other countries with GDP per capita below the OECD average, including Korea and Spain, have comparatively high teachers' salaries. Norway and the United States, two countries with relatively high GDP per capita, spend a below-average proportion of their wealth on teachers' salaries, and Switzerland spends an above-average proportion of its relatively high GDP per capita on teachers' salaries.

Statutory salaries for teachers with 15 years' experience in Korea and Switzerland are more than five times those in the Czech Republic and Hungary.

In the OECD, annual statutory salaries of public primary-school teachers with 15 years' experience range from below US$10 000 in the Czech Republic and Hungary to over US$40 000 in Japan and Switzerland. A primary teacher in Switzerland, the country with the highest statutory salary with 15 years' experience, is paid almost five times as much as a primary teacher in Hungary, where the statutory starting salary is lowest, even after an adjustment for purchasing power parities. This difference has a large impact on the variation in education costs per student (Indicator B4).

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Teaching time and other factors should be considered when salaries are compared.

Statutory salaries, as reported in this indicator, refer to scheduled salaries according to official pay scales. These figures should be distinguished from the actual wage bills incurred by governments (reported in Indicator B5) and the average salaries of teachers (see Annex 3). Furthermore, since teaching time (Indicator D3) and teachers' workloads can differ considerably between countries, these factors should be taken into account when statutory salaries for teachers are compared between countries.

The cost of an hour of teaching time at the upper secondary general level in Denmark, Korea and Switzerland is four times the amount in the Czech Republic and Hungary.

An alternative measure of the cost of teaching time is the statutory salary for a full-time classroom teacher relative to the number of hours per year which that teacher is required to spend teaching students (Indicator D3). This measure reflects the fact that teaching time is organised in different ways across countries, in terms, for example, of the number of hours of instruction which students are supposed to receive each year (Indicator D4) or the proportion of the working day that a full-time teacher is expected to spend in classroom teaching. Although this measure does not adjust salaries for the amount of time that teachers spend in all teaching-related activities, it can nonetheless provide a rough estimate of the cost of an hour of instruction across countries.

The average statutory salary after 15 years' experience per teaching hour is US$35 in a primary education, US$43 in lower secondary and US$52 in upper secondary general education (Tables D1*a*, *b* and *c*). For primary education, the Czech Republic, Hungary and Mexico have relatively low salary costs per hour of instruction (US$13, US$15 and US$16, respectively); by contrast, costs are relatively high in Denmark (US$48), Germany (US$49), Korea (US$62) and in Switzerland (US$48). In Korea, high costs per teaching hour at the primary level are balanced by a relatively high student/teaching staff ratio (31 students per teacher) and low current expenditure on non-teaching staff, resulting in below-average expenditure per student (Indicator B5). In Denmark, on the other hand, high costs per teaching hour at the primary level are combined with a relatively low student/teaching staff ratio (11.2 students per teacher) and above-average expenditure on non-teaching staff creating one of the highest figures for expenditure per student in the OECD.

There is more variation in salary cost per hour of instruction in upper secondary schools, ranging (among OECD countries) from US$16 in the Czech Republic to US$90 in Switzerland.

Difference in statutory salaries of teachers by level and subject specialisation

Governments typically make conscious decisions on whether or not to pay a premium for teachers in the higher levels of education. In 11 out of 22 OECD countries, the statutory salaries of teachers with 15 years' experience and minimum qualifications do not differ by more than 10 per cent between primary and upper secondary (general) levels.

By contrast, in Belgium, Denmark, the Netherlands and Switzerland statutory salaries of experienced upper secondary teachers are at least 30 per cent higher than those of their counterparts in primary schools.

Salaries for general upper secondary teachers tend to be similar to those for vocational teachers in most countries.

In 15 out of 17 OECD countries the statutory salaries of general and vocational teachers with 15 years' experience and minimum qualifications are broadly similar (a difference of less than 8 percentage points), although in Finland and the Netherlands, vocational upper secondary teachers earn substantially less than general upper secondary teachers (31 and 11 per cent less, respectively).

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Statutory salaries of teachers relative to earnings of other workers

In most countries, teachers are well paid in relation to average earnings…

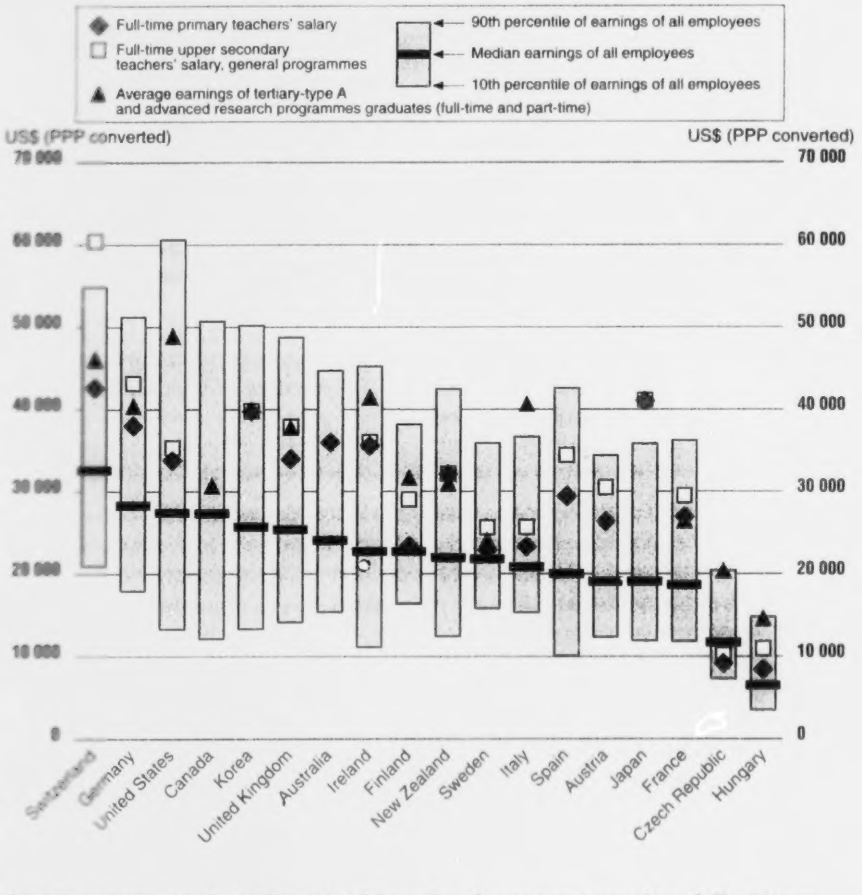
Chart D1.2 compares the statutory salaries of primary and upper secondary teachers with the 10th, 50th and 90th percentiles of the overall distribution of gross annual earnings of full-time wage and salary workers in 18 OECD countries. Although data on average earnings differ in kind from data on statutory salaries, comparisons between the two can provide a useful benchmark for teachers' salaries relative to overall salaries. Although primary teachers in most of the reporting countries fare relatively well when compared with other full-time wage and salary workers, teachers in the Czech Republic, Finland, Hungary and Sweden receive comparatively low compensation. The general pattern is similar in secondary schools.

… but not in relation to earnings of university graduates.

In many OECD countries, teachers are among the most highly educated workers, so it is more relevant to compare their salaries with those of individuals in other highly-skilled occupations. Yet in most of the countries for which

Chart D1.2. **Level of annual statutory teachers' salaries after 15 years' experience in primary and upper secondary education and gross average earnings of full-time employees (1998)**

This chart compares the statutory salaries of primary and upper secondary teachers with the 10th, 50th and 90th percentile of the overall distribution of gross annual earnings of full-time wage and salary workers.



Countries are ranked in descending order of the median of gross average earnings of all employees.
Source: OECD.

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data are available, primary teachers' statutory salaries after 15 years' experience are lower than the average earnings of university graduates, except in New Zealand and, for secondary-school teachers, France, Germany, Sweden and Switzerland. Teachers' salaries in the Czech Republic and Hungary are at most 40 per cent of the average salaries of university graduates.

In interpreting this comparison, other aspects of working conditions of teachers have to be taken into account, such as teachers' teaching load and total working time compared with those of other professions.

Growth in salary scales for additional years of experience

In OECD countries, 15 years' teaching experience equates to between 20 and 90 per cent higher salaries.

The difference between statutory starting salaries and salaries after 15 years' experience is an indication of the economic returns to long service. On average, across OECD countries, statutory salaries for primary teachers with 15 years' experience are 39 per cent higher than starting salaries. The difference ranges from below 20 per cent in Finland, the Netherlands and Spain to almost 90 per cent in Japan.

In most countries, the growth rates for salaries are similar for primary, lower secondary and general upper secondary teachers. The patterns of salary growth for vocational upper secondary teachers vary much more between countries than for other kinds of teachers.

The number of years it takes teachers to progress from minimum to maximum salary varies from 8 to 42 years.

In both Australia and New Zealand, public teachers reach their maximum salary after eight years; in Hungary, Korea and Spain, by contrast, it takes 40 or more years to attain the maximum. In general, in those countries with the largest average annual increases in the salary scale (ranging from 6 to 8 per cent in Australia, New Zealand, Portugal and the United Kingdom), the maximum salary is reached fairly quickly, after between 8 and 11 years. The exception to this pattern is Portugal, which has an average annual increase of 7 per cent over a 29-year period.

Enhancements to basic salary

Salary scales are typically determined at a central or regional level of government.

Teachers tend to be paid according to a uniform scale in which salaries depend mainly on the number of years of teaching experience. In most countries, these salary scales are set at central or regional levels of government. Exceptions to this pattern include the United States, where salary scales are determined at the local level and Finland, Hungary, Sweden and the United Kingdom, where teachers' salaries are set at the school level within a framework set by higher levels of government (Indicator D6).

In almost all countries, teachers can receive enhancements to their basic salary, although the reasons for increases vary.

In almost all countries, teachers can receive an enhancement to their basic salary for reasons other than experience (Tables D1.1*a-d*). Most often, salary enhancements are for taking on management responsibilities in addition to teaching duties. In about half of the countries, teachers can receive an increase in salary if they earn an academic or teaching qualification that is higher than the minimum required to become a teacher. In only a few countries is it possible for teachers to earn more by teaching in a particular field (*e.g.*, mathematics or science), although teachers of students with special educational needs receive more than the basic salary in a few countries. Financial rewards for outstanding performance in teaching are given in only about a third of the

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countries and are frequent only in the Czech Republic, Mexico and the United Kingdom. In a number of countries, teachers can also augment their salaries by teaching more hours than are required in their contract or by leading special activities or taking on special tasks.

In some cases, salary adjustments are based on fixed criteria established by higher levels of government and in others the school itself has some discretion. While data on the level of enhancement of basic salary (other than for experience or educational qualifications) are unavailable for many countries, the sums can be substantial. In the Czech Republic, Finland, Japan, Spain and the United States, "bonuses" range from 15 to 30 per cent for primary-school teachers to between 25 and 80 per cent for teachers in upper secondary general programmes.

DEFINITIONS

Data are from the 1999 OECD/INES *survey on Teachers and the Curriculum and refer to the school year* 1997/98.

The starting salaries reported refer to the average scheduled gross salary per year for a full-time teacher with the minimum training necessary to be fully qualified at the beginning of his or her teaching career.

Reported salaries are defined as the sum of wages (total sum of money that is paid by the employer for the labour supplied) minus the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax", that is before deductions are made for income taxes. Bonuses that constitute a regular part of the salary (such as a 13th month, holidays or regional bonuses) are included in the figures. Additional bonuses (for example, remuneration for teachers in educational priority areas, for participating in school improvement projects or special activities, or for exceptional performance) are excluded from the reported gross salaries but reported separately in percentage terms.

Salaries after 15 years' experience refer to the scheduled annual salary of a full-time classroom teacher with the minimum training necessary to be fully qualified and with 15 years' experience. The maximum salaries reported refer to the scheduled maximum annual salary (top of the salary scale) of a full-time classroom teacher with the minimum training to be fully qualified for his or her job.

Salary data are reported in accordance with formal policies for public institutions.

Data are from the 1999 OECD/INES survey on Teachers and the Curriculum and refer to the school year 1997/98. The purchasing power parity (PPP) exchange rates used to convert salaries into US dollars come from the OECD National Accounts.

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Table D1.1a **Annual statutory teachers' salaries in public institutions at the primary level of education, in equivalent US dollars converted using PPPs (1998)**

	Starting salary/ minimum training	Salary after 15 years' experience/ minimum training	Salary at top of scale/ minimum training	Ratio of starting salary to GDP per capita	Ratio of salary after 15 years' experience to GDP per capita	Ratio of salary after 15 years' experience to starting salary	Years from starting to top salary	Percentage additional bonus[1]	Salary after 15 years' experience per teaching hour
OECD countries									
Australia	25 775	36 175	36 175	1.2	1.6	1.4	8	10	41
Austria	20 800	26 547	41 484	0.9	1.1	1.3	34	n	39
Belgium (Fl.)	19 020	26 157	31 252	0.8	1.1	1.4	27	n	33
Belgium (Fr.)	20 747	28 496	34 235	0.9	1.2	1.4	27	n	33
Czech Republic	7 027	9 342	12 477	0.5	0.7	1.3	32	23	13
Denmark	25 375	31 000	31 000	1.0	1.2	1.2	10	1	48
England	22 393	34 087	50 656	1.0	1.6	1.5	m	m	45
Finland	19 983	23 539	24 216	0.9	1.1	1.2	20	18	36
France	20 080	27 116	40 337	0.9	1.2	1.4	34	12	30
Germany	28 654	38 138	39 041	1.2	1.7	1.3	28	n	49
Greece	19 280	23 694	28 521	1.3	1.6	1.2	33	n	30
Hungary	5 978	8 603	12 526	0.5	0.8	1.4	40	5	15
Ireland	22 216	35 771	40 328	0.9	1.5	1.6	23	n	39
Italy	19 444	23 468	28 465	0.9	1.1	1.2	35	m	31
Japan	21 899	41 201	52 867	0.9	1.7	1.9	31	31	m
Korea	24 150	39 921	66 269	1.6	2.7	1.7	41	6	62
Mexico	10 036	12 450	19 346	1.2	1.5	1.2	11	n	16
Netherlands	24 593	29 328	35 494	1.1	1.3	1.2	25	n	30
Norway	19 565	23 879	25 702	0.7	0.9	1.2	28	3	34
New Zealand	19 863	32 260	32 260	1.1	1.8	1.6	8	20	33
Portugal	16 429	26 288	47 975	1.1	1.7	1.6	29	6	31
Scotland	19 658	32 679	32 679	0.9	1.5	1.7	11	m	34
Spain	25 319	29 590	37 479	1.4	1.7	1.2	42	33	38
Sweden	17 974	23 064	m	0.8	1.0	1.3	m	m	m
Switzerland	32 391	42 724	50 508	1.2	1.6	1.3	25	n	48
Turkey	m	m	m	m	m	1.2	20	m	m
United States	25 165	33 973	42 185	0.8	1.1	1.4	30	18	35
Country mean	**20 530**	**28 441**	**35 737**	**1.0**	**1.4**	**1.4**	**26**	**8**	**35**
WEI participants[2]									
Argentina	6 759	9 442	11 206	0.7	0.9	1.4	23	9	m
Brazil	4 732	6 451	15 522	0.7	1.0	1.4	25	m	m
Chile	12 711	15 233	21 237	1.0	1.2	1.2	30	43	m
Egypt	m	m	m	m	m	m	38	m	m
Indonesia	2 768	3 992	8 321	0.8	1.1	1.4	33	19	m
Jordan	7 326	11 594	26 917	2.1	3.4	1.6	41	a	m
Malaysia	6 550	10 876	15 554	0.8	1.3	1.7	29	7	m
Philippines	8 210	8 382	12 408	2.3	2.4	1.0	22	24	m
Thailand	6 412	15 759	42 867	1.0	2.4	2.5	37	a	m
Uruguay	6 225	7 458	13 340	0.7	0.8	1.2	32	14	m

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[1] Percentage additional bonus is an average of two ratios: maximum bonus applicable to starting salary and maximum bonus applicable to salary at top of scale.

[2] Year of reference 1997 for all WEI participants.

Source: OECD Education Database. See Annex 3 for notes.

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Table D1.1*b*. **Annual statutory teachers' salaries in public institutions at the lower secondary level of education, in equivalent US dollars converted using PPPs (1998)**

	Starting salary/ minimum training	Salary after 15 years' experience/ minimum training	Salary at top of scale/ minimum training	Ratio of starting salary to GDP per capita	Ratio of salary after 15 years' experience to GDP per capita	Ratio of salary after 15 years' experience to starting salary	Years from starting to top salary	Percentage additional bonus[1]	Salary after 15 years' experience per teaching hour
OECD countries									
Australia	25 775	36 175	36 175	1.2	1.6	1.4	8	10	45
Austria	21 585	28 464	44 604	0.9	1.2	1.3	34	n	44
Belgium (Fl.)	19 472	27 932	34 262	0.8	1.2	1.4	27	n	40
Belgium (Fr.)	21 259	30 496	37 627	0.9	1.3	1.4	27	n	42
Czech Republic	7 027	9 342	12 477	0.5	0.7	1.3	32	20	13
Denmark	25 375	31 000	31 000	1.0	1.2	1.2	10	1	48
England	22 661	38 010	52 023	1.0	1.7	1.7	m	m	48
Finland	20 660	27 942	29 127	0.9	1.3	1.4	20	20	58
France	22 579	29 615	42 697	1.0	1.3	1.3	34	12	47
Germany	32 769	38 640	43 156	1.4	1.7	1.2	28	n	53
Greece	19 871	24 337	29 165	1.4	1.7	1.2	33	n	39
Hungary	5 978	11 066	12 526	0.5	1.0	1.9	40	m	20
Ireland	23 303	36 151	40 708	1.0	1.5	1.6	22	n	49
Italy	21 108	25 773	31 546	1.0	1.2	1.2	35	m	42
Japan	21 899	41 201	52 867	0.9	1.7	1.9	31	31	m
Korea	24 150	39 921	66 269	1.6	2.7	1.7	41	6	80
Mexico	12 774	14 708	26 496	1.5	1.7	1.2	11	n	18
Netherlands	25 515	31 380	38 988	1.1	1.4	1.2	24	n	34
Norway	19 565	23 879	25 702	0.7	0.9	1.2	28	3	39
New Zealand	19 863	32 260	32 260	1.1	1.8	1.6	8	11	33
Portugal	16 429	26 288	47 975	1.1	1.7	1.6	29	20	42
Scotland	19 658	32 679	32 679	0.9	1.5	1.7	11	m	36
Spain	27 506	32 144	40 806	1.6	1.8	1.2	42	m	59
Sweden	18 389	23 896	m	0.8	1.1	1.3	m	m	m
Switzerland	38 143	51 361	59 133	1.4	1.9	1.3	23	n	60
Turkey	m	m	m	m	m	1.2	20	m	m
United States	24 624	32 713	43 458	0.8	1.0	1.3	30	22	34
Country mean	**21 459**	**29 899**	**37 749**	**1.0**	**1.4**	**1.4**	**26**	**8**	**43**
WEI participants[2]									
Argentina	10 837	15 773	19 147	1.1	1.5	1.5	23	7	m
Brazil	8 413	10 998	14 224	1.3	1.7	1.3	25	m	m
Chile	12 711	15 233	21 237	1.0	1.2	1.2	30	43	m
Egypt	m	m	m	m	m	m	38	m	m
Indonesia	3 099	4 360	8 321	0.9	1.2	1.4	33	17	m
Jordan	7 326	11 594	26 917	2.1	3.4	1.6	41	a	m
Malaysia	12 535	19 819	27 417	1.5	2.4	1.6	29	7	m
Philippines	8 210	8 382	12 408	2.3	2.4	1.0	m	24	m
Thailand	6 412	15 759	42 867	1.0	2.4	2.5	37	a	m
Uruguay	6 225	7 458	13 340	0.7	0.8	1.2	32	14	m

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1. Percentage additional bonus is an average of two ratios: maximum bonus applicable to starting salary and maximum bonus applicable to salary at top of scale.
2. Year of reference 1997 for all WEI participants.

Source: OECD Education Database. See Annex 3 for notes.

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Table D1.1c. **Annual statutory teachers' salaries in public institutions at the upper secondary level of education, general programmes, in equivalent US dollars converted using PPPs (1998)**

	Starting salary/ minimum training	Salary after 15 years' experience/ minimum training	Salary at top of scale/ minimum training	Ratio of starting salary to GDP per capita	Ratio of salary after 15 years' experience to GDP per capita	Ratio of salary after 15 years' experience to starting salary	Years from starting to top salary	Percentage additional bonus[1]	Salary after 15 years' experience per teaching hour
OECD countries									
Australia	25 775	m	m	1.2	m	m	8	m	m
Austria	22 920	30 635	50 220	1.0	1.3	1.3	34	n	50
Belgium (Fl.)	24 079	35 986	43 448	1.0	1.5	1.5	25	n	56
Belgium (Fr.)	26 786	39 569	47 976	1.1	1.6	1.5	25	n	59
Czech Republic	7 790	10 347	13 844	0.6	0.7	1.3	32	m	16
Denmark	27 816	40 934	40 934	1.1	1.6	1.5	13	12	82
England	22 661	38 010	52 023	1.0	1.7	1.7	m	m	48
Finland	m	29 127	30 990	m	1.3	m	20	m	68
France	22 579	29 615	42 697	1.0	1.3	1.3	34	12	48
Germany	35 177	43 307	47 923	1.5	1.9	1.2	27	n	63
Greece	19 871	24 337	29 165	1.4	1.7	1.2	33	n	39
Hungary	7 535	11 066	14 265	0.7	1.0	1.5	40	4	20
Ireland	23 303	36 151	40 708	1.0	1.5	1.6	22	n	49
Italy	21 108	25 773	33 115	1.0	1.2	1.2	35	m	42
Japan	21 899	41 225	54 465	0.9	1.7	1.9	31	31	m
Korea	24 150	39 921	66 269	1.6	2.7	1.7	41	6	82
Mexico	m	m	m	m	m	m	m	m	m
Netherlands	25 762	43 820	51 956	1.1	1.9	1.7	24	n	48
Norway	21 498	25 877	27 919	0.8	0.9	1.2	28	4	51
New Zealand	19 863	32 260	32 260	1.1	1.8	1.6	8	3	37
Portugal	16 429	26 288	47 975	1.1	1.7	1.6	29	20	51
Scotland	19 658	32 679	32 679	0.9	1.5	1.7	11	m	m
Spain	29 547	34 547	44 053	1.7	2.0	1.2	39	40	63
Sweden	20 052	25 766	m	0.9	1.2	1.3	m	m	m
Switzerland	45 693	60 514	68 829	1.7	2.3	1.3	23	n	90
Turkey	m	m	m	m	m	1.2	20	m	m
United States	24 869	35 455	43 457	0.8	1.1	1.4	30	27	38
Country mean	**23 201**	**33 050**	**41 616**	**1.1**	**1.5**	**1.4**	**26**	**9**	**52**
WEI participants[2]									
Argentina	10 837	15 773	19 147	1.1	1.5	1.5	23	7	m
Brazil	8 148	11 152	14 530	1.3	1.7	1.4	25	m	m
Chile	12 711	15 915	22 209	1.0	1.3	1.3	30	44	m
Egypt	m	m	m	m	m	m	40	m	m
Indonesia	3 659	5 150	8 321	1.0	1.5	1.4	33	18	m
Jordan	7 326	11 594	26 917	2.1	3.4	1.6	41	a	m
Malaysia	12 535	19 819	27 417	1.5	2.4	1.6	29	7	m
Philippines	8 210	8 382	12 408	2.3	2.4	1.0	m	24	m
Thailand	6 412	15 759	42 867	1.0	2.4	2.5	37	a	m
Uruguay	6 847	8 204	14 672	0.7	0.9	1.2	32	14	m

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[1] Percentage additional bonus is an average of two ratios maximum bonus applicable to starting salary and maximum bonus applicable to salary at top of scale

[2] Year of reference 1997 The data include all programmes at the upper secondary level for WEI participants

Source OECD Education Database See Annex 3 for notes

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Table D1.1d. Annual statutory teachers' salaries in public institutions at the upper secondary level of education, vocational programmes, in equivalent US dollars converted using PPPs (1998)

	Starting salary/ minimum training	Salary after 15 years' experience/ minimum training	Salary at top of scale/ minimum training	Ratio of starting salary to GDP per capita	Ratio of salary after 15 years' experience to GDP per capita	Ratio of salary after 15 years' experience to starting salary	Years from starting to top salary	Percentage additional bonus[1]	Salary after 15 years' experience per teaching hour
Australia	m	m	m	m	m	m	m	m	m
Austria	22 265	29 350	47 474	0.9	1.2	1.3	34	n	47
Belgium (Fl.)	m	m	m	m	m	m	26	m	m
Belgium (Fr.)	m	m	m	m	m	m	m	m	m
Czech Republic	7 791	10 348	13 847	0.6	0.7	1.3	32	23	16
Denmark	a	a	a	m	m	m	a	m	m
England	m	m	m	m	m	m	m	m	m
Finland	15 072	19 983	20 999	0.7	0.9	1.3	20	45	m
France	22 579	29 615	42 697	1.0	1.3	1.3	34	12	48
Germany	35 278	43 457	48 074	1.5	1.9	1.2	27	n	62
Greece	19 871	24 337	29 165	1.4	1.7	1.2	33	n	39
Hungary	7 700	11 317	16 443	0.7	1.0	1.5	40	5	20
Ireland	23 303	36 151	40 708	1.0	1.5	1.6	22	n	m
Italy	21 108	25 773	33 115	1.0	1.2	1.2	35	m	42
Japan	21 899	41 225	54 465	0.9	1.7	1.9	31	31	m
Korea	24 150	39 921	66 269	1.6	2.7	1.7	41	9	80
Mexico	m	m	m	m	m	m	m	m	m
Netherlands	25 665	38 988	45 586	1.1	1.7	1.5	23	n	45
Norway	19 565	23 879	25 702	0.7	0.9	1.2	28	3	41
New Zealand	a	a	a	m	m	m	a	m	m
Portugal	16 429	26 288	47 975	1.1	1.7	1.6	29	20	51
Scotland	a	a	a	m	m	m	a	m	m
Spain	27 652	31 975	39 684	1.6	1.8	1.2	39	44	59
Sweden	18 701	24 935	m	0.9	1.1	1.3	m	m	m
Switzerland	41 904	56 453	62 581	1.6	2.1	1.3	22	m	78
Turkey	m	m	m	m	m	1.2	20	m	m
United States	24 869	35 455	43 457	0.8	1.1	1.4	30	27	38
Country mean	**21 989**	**30 525**	**39 896**	**1.0**	**1.5**	**1.4**	**30**	**15**	**48**

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[1] Percentage additional bonus is an average of two ratios: maximum bonus applicable to starting salary and maximum bonus applicable to salary at top of scale.

Source: OECD Education Database. See Annex 3 for notes.

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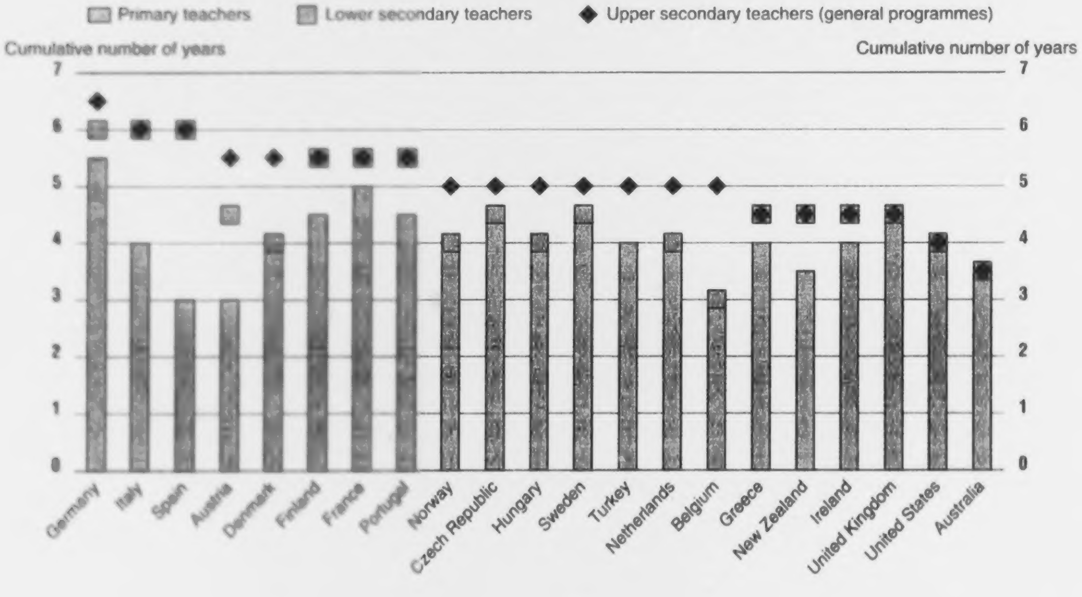
PRE-SERVICE TRAINING REQUIREMENTS FOR NEW TEACHERS

- All OECD countries currently require an ISCED 5 (A or B) qualification in order to enter the teaching profession at the primary level and beyond.
- The duration of pre-service training for primary teachers varies from 3 years in Austria, Belgium, and Spain to 5.5 years in Germany.
- At the secondary level, the duration of pre-service training is generally higher than at the primary level, whereby some countries increase requirements only for upper secondary teachers. The United Kingdom and the United States are the only exceptions which show no difference between the requirements for the different levels.

Chart D2.1. **Number of years of post-secondary education required to become a teacher (1998)**



Note: In certain countries, different types of schools have different requirements and different pathways can be followed (*e.g.* in Ireland and the United Kingdom) to become a fully qualified teacher. In these cases, the various programmes are used to calculate an average length of programme. For more details, see table "pre-service training requirements for new teachers" in Annex 3.
Source: OECD.

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POLICY CONTEXT

This indicator shows the current educational and pedagogical requirements for new teachers in OECD *countries.*

Increasing the number of years that a prospective teacher is required to study in order to become certified, requiring in-depth subject knowledge in addition to pedagogical skills, and requiring prospective teachers to be "apprenticed" to experienced teachers, have each been advocated as ways to increase the skill level of the next generation of teachers. Comparisons between countries of the pre-service training requirements of teachers can inform policymakers of some of the alternative models available as they seek to reform teacher training requirements in their countries.

Whether or not pedagogical instruction is consecutive or concurrent with subject matter instruction is also presented.

This indicator focuses on each country's formal pre-service training requirements for new teachers. For each ISCED level taught (1, 2, 3), information is given on the type of educational qualification (*e.g.* ISCED 3, 5B, 5A) and the number of full-time equivalent years of teacher training required by the teacher. How pre-service training is organised is also examined, specifically the question of whether pedagogical instruction is consecutive or concurrent with subject-matter instruction.

EVIDENCE AND EXPLANATIONS

All OECD *countries currently require a tertiary qualification for entry to the teaching profession at the primary level and beyond.*

At the primary level of education and beyond, a tertiary qualification is required for entry to the teaching profession in all OECD countries for which data are available. In Austria, Belgium, Denmark, and Hungary an ISCED 5B qualification is required for entry to the profession at both the primary and the lower secondary level of education, while in Portugal a tertiary-type B qualification is only sufficient in primary education. For entry to teaching in upper secondary general education, an ISCED 5A qualification is required in each of the countries presented here. With the exception of Denmark and some groups of teachers in Austria (those teaching technical subjects and word processing, shorthand and domestic science), an ISCED 5A qualification is also required for new teachers in upper secondary vocational education.

Pre-service training for teachers at the upper secondary level tends to last longer than at the primary and lower secondary levels.

The duration of pre-service training for primary teachers varies from three years in Austria, Belgium, and Spain to 5.5 years in Germany (Chart D2.1). For the lower secondary level, the duration of pre-service training is higher than that for the primary level in slightly more than half of the countries, whereas it remains the same for all other countries.

Pre-service training requirements for teachers at the upper secondary level are higher than those for teachers at the primary level in all countries besides the United Kingdom and the United States. Among the countries where the requirements for lower secondary teachers are already higher than for primary teachers, most do not require additional study time for the upper secondary level. Exceptions to this pattern are Germany and Austria, where requirements differ between all three levels. The average duration of upper secondary general teacher training ranges from a minimum of four years in Australia to as many as six years or more in Germany, Spain and Italy.

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The organisational structure of teacher training can affect its duration.

In Germany, pre-service training for all levels of education is long. Prospective teachers are required to spend between 18 and 24 months in a practical and professional training period (preparatory service) while the "teaching practice" component of teacher training tends to be shorter in most other countries. In Austria, the pedagogical training of prospective teachers of "vocational subjects" at the upper secondary vocational level lasts two or three years.

The length of teacher training can also be affected by the timing of pedagogical instruction, that is whether pedagogical instruction is consecutive or concurrent with subject-matter instruction. In the consecutive model, the total duration of pre-service training for teachers depends heavily on the number of years of academic training required to earn a tertiary qualification in one or more subjects. Completing a full academic qualification before pedagogical training tends to take longer than when pedagogy and subject-matter are combined.

Compulsory induction periods or work experience can increase the duration of teacher training programmes.

Relevant work experience is required to become a vocational teacher in some countries. In Austria, for example, pedagogical training for prospective teachers of practical subjects (*e.g.*, teachers who instruct in the workshops of a vocational school) lasts three years, following the completion of apprenticeship training (*Werkmeisterschule*) in the vocational field to be taught, and at least six years' practice in a relevant occupation. In Finland, individuals wishing to become an upper secondary vocational teacher must hold either a higher vocational diploma or Master's degree from university and have two to three years' relevant work experience. In order to become an upper secondary vocational teacher in Denmark, it is necessary to have commercial or technical qualifications, supplemented by a course in the theory and practice of education and relevant work experience of between two and five years. The course in the theory and practice of education, lasting 500-600 hours, must be taken within the first two years of employment at a vocational school. In Norway, the main route to becoming a technical and vocational teacher is to obtain a commercial or craft certificate, and to acquire at least two years' relevant work experience, two years' theoretical training and one years' practical and theoretical training.

In primary and lower secondary education, the concurrent model of pre-service training predominates…

At the primary and lower secondary levels of education, the concurrent model of pre-service training is adopted in most countries. Under this model, pedagogical training is taken at the same time as studies relating to the specific subject area to be taught. There are some exceptions to this pattern: in France, pre-service training is organised according to the consecutive model; in New Zealand and the United Kingdom pedagogical studies can be taken either concurrently with or following completion of subject-matter studies (often following an ISCED 5A degree in a particular subject). Both models are used in Ireland: the concurrent model predominates for primary teachers, while pedagogical training for most prospective secondary teachers is consecutive.

… while in upper secondary education pre-service training is more often organised according to the consecutive model.

At the upper secondary (general) level, the organisation of pre-service training varies more widely between countries. In Austria, Denmark, France, Ireland, Italy, Netherlands, Norway and Spain pre-service training is usually organised according to the consecutive model, while in Australia, the Czech Republic, Finland, Germany, Greece, Portugal and the United States it is usually concurrent. In Belgium, Hungary, New Zealand, Turkey and United Kingdom pre-service training can follow either models.

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In Belgium, pedagogical training may be taken either during the last one or two years of a university degree course, or as a one-year full-time course after completion of the subject matter course. In the United Kingdom, two traditional routes exist: a concurrent full-time training programme combining subject-matter, pedagogical training and theory of education, including at least two years' study of the main subject at university level; and a one-year full-time Post-Graduate Certificate in Education (PGCE) comprising subject-matter, pedagogical training and theory of education for prospective teachers who already hold a Bachelor's degree.

Educational qualifications held by current mathematics teachers

Pre-service teaching requirements have changed substantially in many countries over the years. While it is usual now to require a tertiary-type A degree (ISCED 5A) from prospective teachers, this has not always been the case. For this reason, current pre-service requirements cannot serve as a proxy for the qualifications currently held by the teaching force. Furthermore, relatively few countries maintain information on the qualifications held by current teachers, which means that comparable sources of data on this topic are quite limited.

The most recent cross-national study to collect information on the education level of current teachers is the Third International Mathematics and Science Study (TIMSS). In this study, the mathematics and science teachers of 8th-grade students provided information on their level of education. While the qualifications of mathematics teachers are not necessarily representative of the level of qualification of all teachers, this indicator does show the range of qualifications held by both new and experienced teachers in an important subject area. These data are from 1995.

Most 8th-grade students are taught mathematics by teachers holding a university-level qualification.

The vast majority of 8th-grade students are taught mathematics by teachers who have at least a university-level degree or its equivalent. In nine out of 18 countries, more than 90 per cent of students' mathematics teachers have a Bachelor's or higher degree. Notable exceptions are Hungary and the Netherlands, where approximately eight out of ten students are taught by teachers with a secondary qualification and between one and four years of teacher training. In the Netherlands, however, the programme followed by teachers is a Hoger Beroeps Opleiding (HBO: higher professional education). This programme was classified as a secondary programme in 1995 when TIMSS was undertaken but has recently been re-classified as a tertiary-type A programme.

Most teachers of 8th-grade mathematics students have at least some formal teacher training in addition to (or as part of) their educational qualifications. The exception is Greece where 88 per cent hold a Bachelor's degree or equivalent but have had no teacher training.

Eighth-grade students whose teachers have a higher level of educational qualifications tend to attain higher scores on the mathematics assessment in TIMSS. This may reflect the value of additional teacher training but it may also reflect the practice of giving teachers with higher qualifications the more advanced classes.

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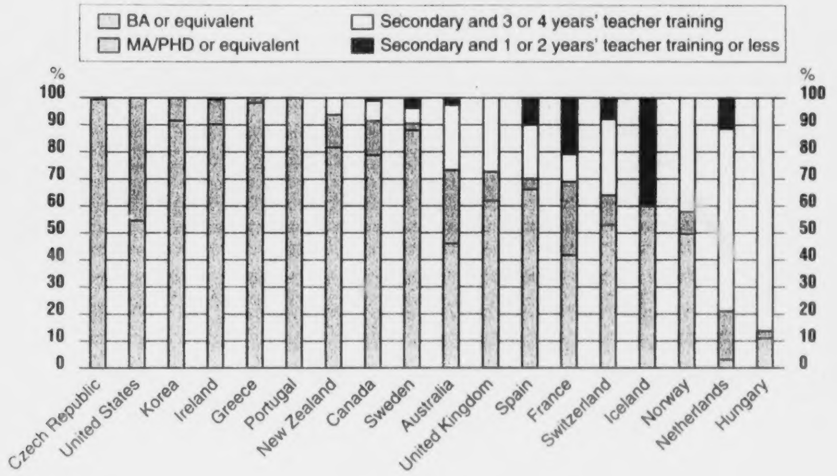
Chart D2.2. **Distribution of 8th-grade mathematics teachers by highest level of formal education completed (1995)**



While the qualifications of mathematics teachers are not necessarily representative of the qualifications of all teachers, this indicator does show the range of qualifications held by both new and experienced teachers in an important subject area.

Note: The highest level of formal education is reported according to the IEA/TIMSS classification and not according to the ISCED-97 classification.

Countries are ranked in descending order of the percentage of 8th-grade students with mathematic teachers who hold at least a BA.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS. For notes see Annex 3.

DEFINITIONS

Pre-service training

The duration of pre-service training for new teachers refers to the typical number of full-time equivalent years of teacher training formally required to become a fully qualified teacher in a given country. In systems where work experience is required, these years of practice have not been included. Deviations from this definition are reported in Annex 3.

Data are from a 1999 OECD/INES Network C survey on pre-service training. They are reported in accordance with formal policies in each country.

Organisation of pre-service training: the concurrent model and the consecutive model

Pre-service teacher training can be organised according to two models:

- the concurrent model, in which theoretical and practical training in education pedagogy is provided at the same time as study of the subject-matter;
- the consecutive model in which theoretical and practical training follows the subject-matter course. Under this model, students usually obtain a higher education degree (tertiary-type A or B) in one or more subjects before they train in the theory and practice of education.

Table D2.1. **Distribution of 8th-grade mathematics teachers by highest level of formal education completed (1995)**

	Teacher training without completing secondary education	Secondary education only	Secondary and 1 or 2 years teacher training	Secondary and 3 or 4 years teacher training	BA or equivalent and no teacher training	BA or equivalent and teacher training	MA/PhD and no teacher training	MA/PhD and teacher training
Australia			2.7	24.0		46.1		27.3
Canada			1.1	7.4		78.9	0.2	12.4
Czech Republic		0.6					1.9	97.5
France	0.5	5.0	15.3	10.3	23.7	18.0	12.8	14.4
Greece					87.6	10.6	0.8	0.9
Hungary				86.2	1.5	9.5	2.1	0.7
Iceland[1]	30.3	0.5	9.1		6.3	53.6	0.1	0.0
Ireland			0.6		2.3	87.8		9.2
Korea						91.6		8.4
Netherlands	0.3	1.3	9.9	67.4		3.1	2.5	15.5
New Zealand				6.2	5.1	76.5	0.7	11.4
Norway[1]				42.1	1.8	47.8	0.9	7.4
Portugal					32.0	68.1		
Spain	10.0			20.0	59.2	7.0	3.8	
Sweden		2.8	1.1	5.6	23.1	64.9		2.6
Switzerland		0.7	7.1	28.2		52.9	2.0	9.2
United Kingdom[2]				27.4	7.7	54.4	4.5	6.0
United States					0.8	53.7	0.7	44.8

Note: Data are expressed as a percentage of 8th-grade students taught. The highest level of formal education is reported according to the IEA/TIMSS classification and not according to the ISCED-97 classification.

[1] Data for mathematics teachers are only available for 70-84 % of 8th-grade students.

[2] Data for mathematics teachers are only available for 50-69 % of 8th-grade students.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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Table D2.2. **Distribution of 8th-grade mathematics teachers by highest level of formal education completed and age-group (1995)**

	Age in years	Distribution of 8th-grade students by age of their mathematics teachers	Distribution of the highest level of formal education in percentage			
			Up to secondary and 1 or 2 years teacher training	Secondary and 3 or 4 years teacher training	BA or equivalent	MA/PhD or equivalent
Australia	Under 30	21.6		36.2	49.1	14.6
	30-39	27.3		22.5	52.7	24.8
	40-49	40.8	2.8	22.8	37.5	36.8
	50 and older	10.3	14.7	8.3	58.5	18.5
Canada	Under 30	14.4		10.5	87.5	2.0
	30-39	20.4		6.8	84.0	9.2
	40-49	39.6	2.5	7.0	69.4	21.1
	50 and older	25.7	0.3	7.2	84.1	8.4
Czech Republic	Under 30	8.1				100.0
	30-39	19.7	0.7			99.3
	40-49	41.5				100.0
	50 and older	30.7	1.6			98.4
France	Under 30	11.4		2.1	75.7	22.2
	30-39	17.0		14.4	30.6	55.0
	40-49	47.3	18.2	10.0	43.6	28.3
	50 and older	24.4	50.1	11.9	29.7	8.2
Greece	Under 30	0.4			100.0	
	30-39	34.1			96.4	3.6
	40-49	53.6			99.0	1.0
	50 and older	12.0			100.0	
Hungary	Under 30	9.6		92.5	7.5	
	30-39	30.9		81.1	16.6	2.4
	40-49	41.8		87.6	10.6	1.8
	50 and older	17.6		91.9	4.2	3.9
Iceland[1]	Under 30	12.2	13.0		87.0	
	30-39	38.9	12.8		87.2	
	40-49	28.9	59.5		40.3	0.2
	50 and older	20.0	81.0		18.8	0.2
Ireland	Under 30	17.2			95.8	4.2
	30-39	33.8	1.9		89.1	9.0
	40-49	35.1			91.2	8.8
	50 and older	13.9			82.9	17.1
Korea	Under 30	26.2			88.1	11.9
	30-39	42.6			90.9	9.1
	40-49	12.4			88.6	11.4
	50 and older	18.7			100.0	
Netherlands	Under 30	5.7		100.0		
	30-39	33.9	7.9	78.9	2.1	11.0
	40-49	50.4	9.5	61.5	4.8	24.3
	50 and older	10.1	39.7	40.4		20.0
New Zealand	Under 30	12.2			86.0	14.0
	30-39	37.9		3.6	88.4	8.0
	40-49	34.5		12.4	74.4	13.2
	50 and older	15.4		3.5	78.1	18.5
Norway[1]	Under 30	7.6		88.9	11.1	
	30-39	24.1		64.2	32.6	3.2
	40-49	38.3		35.2	53.6	11.1
	50 and older	30.1		21.4	67.8	10.8
Portugal	Under 30	44.3			100.0	
	30-39	35.2			100.0	
	40-49	14.4			100.0	
	50 and older	6.1			100.0	
Spain	Under 30	0.4			100.0	
	30-39	24.5	3.1	18.0	74.8	4.1
	40-49	47.3	7.4	21.1	67.5	4.0
	50 and older	27.7	19.8	17.4	59.1	3.8
Sweden	Under 30	9.0	15.0	5.7	79.3	
	30-39	22.8	3.4	3.2	93.5	
	40-49	27.4	4.3	12.6	77.9	5.2
	50 and older	40.7	1.3	2.4	93.4	2.9
Switzerland	Under 30	10.1	19.1	17.8	56.7	6.5
	30-39	27.4	9.0	19.1	62.7	9.2
	40-49	37.3	4.0	43.6	38.8	13.6
	50 and older	25.2	7.5	19.6	61.4	11.5
United Kingdom[2]	Under 30	16.0		20.4	75.6	3.9
	30-39	24.2		29.0	57.4	13.6
	40-49	42.7		25.9	62.7	11.4
	50 and older	17.0		34.2	55.2	10.6
United States	Under 30	16.8			83.5	16.5
	30-39	19.5			83.9	16.1
	40-49	44.3			35.9	64.1
	50 and older	19.4			42.2	57.8

Note: Data are expressed as a percentage of 8th-grade students taught. The highest level of formal education is reported according to the IEA/TIMSS classification and not according to the ISCED-97 classification.

[1] Data for mathematics teachers are only available for 70-84 % of 8th-grade students.

[2] Data for mathematics teachers are only available for 50-69 % of 8th-grade students.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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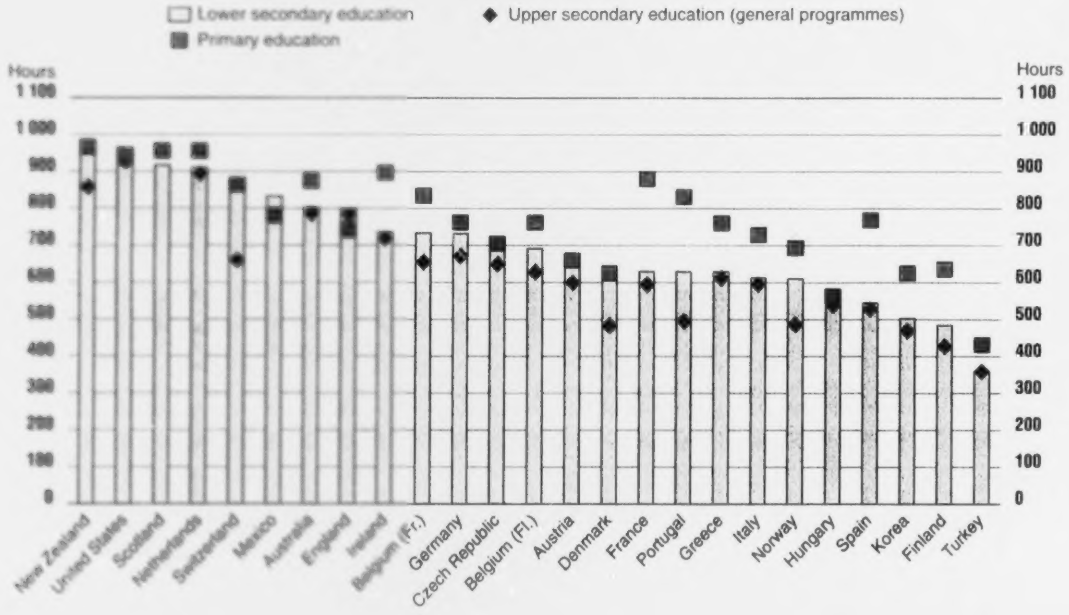
TEACHING TIME

- Teaching time affects the amount of time available for planning and other professional activities, and is related to motivational aspects of the teaching profession.
- In both primary and secondary education, countries vary widely in the number of teaching hours per year for the average public school teacher. Teachers in some countries spend twice as much time teaching than teachers in other countries.
- In primary education teaching hours are typically higher than in secondary education.

Chart D3.1. **Statutory number of teaching hours per year in public institutions, by level of education (1998)**



Countries are ranked in descending order of the number of teaching hours in lower secondary schools.
Source: OECD.

POLICY CONTEXT

This indicator shows the number of hours per year a full-time classroom teacher is required to spend teaching and highlights the relationship between teaching time and working time across OECD countries.

Together with factors such as student/teaching staff ratios, students' hours of instruction and teachers' salaries, the amount of time teachers spend teaching influences the financial resources which have to be devoted to education. At the same time, teaching time is an important element of teachers' working conditions. It affects the amount of time available for planning and other professional activities, and is also related to motivational aspects of the teaching profession. The proportion of working time associated with teaching can be interpreted as a measure of teachers' workload. It provides information on the amount of time available for other activities, such as lesson preparation, correction, in-service training and staff meetings.

EVIDENCE AND EXPLANATIONS

In both primary and secondary education, countries vary in the number of teaching hours per year required of the average public school teacher. In primary education teaching hours are usually higher than in secondary education.

In most countries, teaching hours are higher in primary education than in lower secondary and upper secondary education. The average number of teaching hours in primary education is 788, in contrast to 700 hours in lower secondary education. In upper secondary education the mean is lower still, 642 hours in general programmes and 678 hours in vocational programmes.

Teachers in some countries spend up to twice as much time teaching as teachers in other countries.

In primary education the number of teaching hours per year ranges from 583 in Hungary to 985 in New Zealand. In lower secondary schools, it ranges from 502 in Korea to 985 in New Zealand. In upper secondary education, hours range in general programmes from 428 hours in Finland to 943 hours in the United States, and in vocational programmes between 497 in Korea and 1 008 in Belgium (French Community).

At all levels of education, teaching hours in Hungary and Turkey are comparatively low.

In Hungary and Turkey the number of teaching hours per year is comparatively low at all levels of education reported (around 580 hours or less), while in the Netherlands, New Zealand and the United States it is high (900 hours or more). In Finland and Korea teaching hours are low in secondary education (both at the lower secondary and the upper secondary level). In Belgium teaching hours are high in upper secondary vocational education (around 950 hours or more) (see Table D3.1).

In most countries, formal working hours exceed teaching time.

Although in some countries a teacher's school day is spent almost exclusively teaching, in other countries, teachers are also formally required to spend some time every day/week working on non-teaching activities. This non-teaching time can be devoted to activities such as preparation of lessons, correction of assignments and tests, professional development, support of students, and meetings with parents.

While statutory teaching time is relatively easy to measure, total working time is not.

The structure of teachers' working time varies widely between countries, making it difficult to establish an internationally comparable measure of working time. In some countries, teachers are required to be at school for a mandatory number of hours each week, while in others they are simply expected to work a specific amount of time, whether at home or at school, in

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order to earn a full time salary. While teachers' working time is not directly comparable across these organisational models, data on working time can give an indication of the level of effort formally required of teachers in different countries.

In some countries teachers are required to work a specific number of hours per week, at home or at school, in order to earn their full-time salary…

In the Czech Republic, Denmark, Greece, Hungary, Korea, the Netherlands, Norway, Spain and Sweden full-time teachers are required to work a specific number of hours per week, (including both teaching activities and non-teaching activities) in order to earn their full-time salary. The working hours may be spent at school or outside school, although in Spain at least 30 of the 37.5 hours must be spent at school according to formal policy. Specified working hours per week are lowest in Denmark, Spain and Greece (around 37 hours) and highest in Korea and Norway (44 hours). But in Norway the relatively high number of working hours per week is combined with a relatively low number of working weeks.

… while in other countries teachers are required to be at school for a specific number of hours each week, both for teaching and for non-teaching activities.

In Australia and Scotland full-time teachers are required to spend a specific number of working hours at school per week (38 and 27.5 hours respectively). In Ireland teachers at ISCED levels 0 and 1 are required to be at school for the whole school day (5 hours and 40 minutes per day) including break time and the lunch period when they supervise the pupils. In Mexico and New , it is only at ISCED level 1 that full-time teachers are required to spend a specific number of working hours (both 25 hours) per week at school. In lower secondary education and upper secondary general education teachers in New Zealand can set their own working hours on the basis of the number of classes that they are assigned to teach.

In Belgium, Finland, France, Germany and Portugal teachers are required to be at school only for the hours that they are scheduled to teach.

In Belgium, Finland, France, Germany and Portugal full-time teachers are only required to be at school for the specified number of teaching hours. In Ireland, this is also the case for teachers at ISCED level 2 and 3. There is no requirement as to how much time they must spend on non-teaching activities each week. In Germany there is no mandatory or formal amount of time that teachers must spend working, but there is a customary amount of time (38.5 or 40 hours) worked by all civil servants. In the United States, teachers' working hours are set at the local or school level. The average number of working hours per week is 33.6 hours.

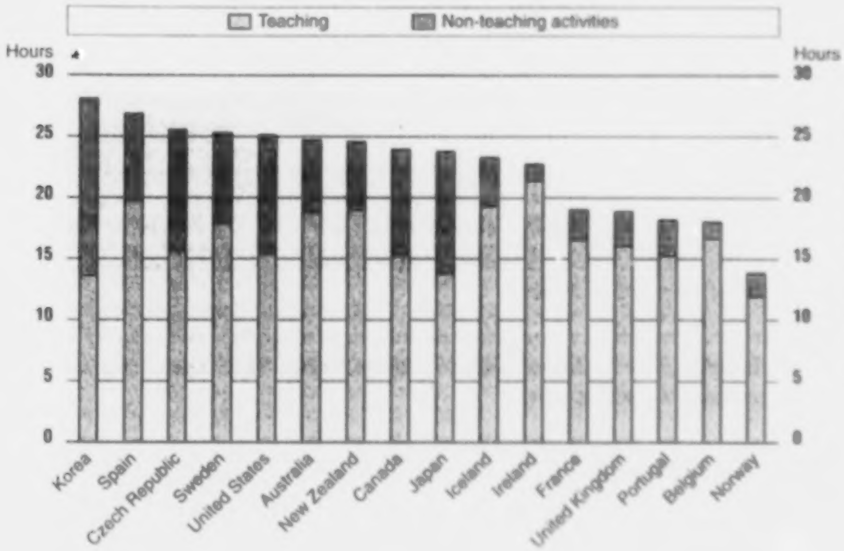
Variation in the amount of time that 8th-grade mathematics teachers are required to spend on teaching and on non-teaching activities.

An alternative source of information on teaching and working comes from a survey of teachers. In the Third International Mathematics and Science Study (TIMSS), the mathematics teachers of 8th-grade students were asked about the amount of time that they are formally required to spend on teaching and on non-teaching activities. In most OECD countries participating in TIMSS, the mathematics teachers of 8th-grade students reported teaching, on average, between 15 and 18 hours per week. Teachers in Korea and Norway taught less (13.6 and 12 hours, respectively) while teachers in Ireland and the Netherlands taught more than 20 hours per week.

The amount of time formally required for non-teaching activities varies more between countries than teaching time.

Variation between countries in the total amount of time that teachers are formally expected to work each week is primarily determined by the amount of time prescribed for non-teaching activities. Among the 17 countries for which data are available from TIMSS, the total scheduled time of 8th-grade mathematics teachers varies between 13 hours in Hungary and 28 hours in Korea. In five countries, teachers spend more than 25 hours in school (the Czech Republic, Korea, Spain, Sweden and the United States).

Chart D3.2. **Number of hours in the school week that 8th-grade mathematics teachers have formally scheduled for teaching and non-teaching activities (1995)**



Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS. For notes see Annex 3.

The TIMSS survey shows that in general teachers also spend a significant amount of time working in addition to their formally scheduled hours, e.g. attending conferences or correcting of students' work, which is not represented in this chart.

There is more uniformity between countries in the number of hours that mathematics teachers have scheduled to teach than in the amount of time they are formally required to spend on non-teaching activities. In half of the countries, mathematics teachers have formally scheduled less than four hours per week, on average, on non-teaching activities, while in eight countries this amounts to seven hours or more.

The teachers of 8th-grade mathematics students in some countries spend 10 hours per week or more on non-teaching activities.

In Belgium, Ireland and Norway, the teachers of 8th-grade mathematics students reported that they spent less than two hours of formally scheduled time, on average, on non-teaching activities, while in the Czech Republic, Hungary, Japan, Korea and the United States teachers spent about ten hours or more. The latter countries, along with Canada and Sweden, tend to have the largest proportion of formally scheduled time devoted to curriculum planning.

Formally scheduled non-teaching time is primarily devoted to supervision of students.

In most countries, however, non-teaching time is devoted to supervision of students. The amount of time that teachers of 8th-grade mathematics students spend on student supervision is primarily affected by two factors: 1) the degree to which other school staff monitor students during non-teaching time, 2) the degree to which students are required to be at school during non-teaching time.

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DEFINITIONS

Teaching time

Teaching time is defined as the total number of hours per year for which a full-time classroom teacher is formally responsible for teaching a group or class of students. Periods of time formally allowed for breaks between lessons or groups of lessons are excluded. Deviations from this definition are reported in Annex 3.

Working time

Working time refers to the normal working hours of a full-time teacher. It varies widely across OECD countries. According to the formal policy in a given country working time can refer:

- only to the time directly associated with teaching (and other curricular activities for students such as assignments and tests, but excluding annual examinations);
- or to time directly associated with teaching and to hours devoted to other activities related to teaching, such as lesson preparation, counselling of students, correction of assignments and tests, professional development, meetings with parents, staff meetings and general school tasks.

It does not include paid overtime. The different perceptions of working time are reported in Annex 3.

Data are from the 1999 OECD/INES *survey on Teachers and the Curriculum and refer to the school year* 1997/98. *They are reported in accordance with formal policies for public institutions.*

Teaching hours per year are calculated on the basis of teaching hours per day multiplied by the number of teaching days per year, or on the basis of teaching hours per week multiplied by the number of weeks per year when schools are open for teaching. The hours per year that are accounted for by days when schools are closed for festivities and celebrations are excluded.

If teaching hours are not formally prescribed at the central or regional level in a particular country, survey data on the amount of time that teachers actually spend teaching has been substituted (*e.g.*, in the United States). See Annex 3 for a discussion of data sources.

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Table D3.1. **Number of teaching hours per year in public institutions by level of education (1998)**

	Primary education (ISCED 1)	Lower secondary education (ISCED 2)	Upper secondary education (ISCED 3) general programmes	Upper secondary education (ISCED 3) vocational programmes
Australia	893	802	802	m
Austria	678	651	616	629
Belgium (Fl.)	781	691	644	947
Belgium (Fr.)	854	733	671	1 008
Czech Republic	724	695	666	666
Denmark	644	644	500	680
England	760	798	798	m
Finland	656	485	428	m
France	899	629	611	611
Germany	781	732	688	696
Greece	780	629	629	629
Hungary	583	555	555	555
Ireland	915	735	735	m
Italy	748	612	612	612
Korea	644	502	486	497
Mexico	800	832	m	m
Netherlands	975	910	910	875
Norway	713	611	505	589
New Zealand	985	985	874	a
Portugal	850	629	512	512
Scotland	975	917	x	a
Spain	788	545	545	545
Switzerland	883	860	676	726
Turkey	432	360	360	486
United States	958	964	943	943
Country mean	**788**	**700**	**642**	**678**

Source OECD Education Database See Annex 3 for notes

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Table D3.2. How working time is organised (1998)

1. Full-time teachers work a specified number of hours per week to earn their full-time salary, including non-teaching activities.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
Czech Republic	42.5	42.5	42.5	42.5	42.5
Denmark	37.0	37.0	37.0	37.0	
Greece	37.5	37.5	37.5	37.5	37.5
Hungary	40.0	40.0	40.0	40.0	40.0
Korea		44.0	44.0	44.0	44.0
Netherlands	38.0	38.0	38.0	38.0	38.0
Norway		44.0	44.0	44.0	44.0
Spain	37.5	37.5	37.5	37.5	37.5
Sweden		40.0	40.0	40.0	40.0

2. Full-time teachers are required to be at school for a specified number of hours per week to earn their full-time salary, including non-teaching activities.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
Australia		38.0	38.0	38.0	
England		33.3	33.3	33.3	
Ireland	28.3	28.3			
Mexico	20.0	25.0			
New Zealand		25.0			
Scotland		27.5	27.5		

3. Full-time teachers are only required to be at school for a specified number of teaching hours. There is no requirement for how much time must be spent on non-instructional activities.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
Austria			m	m	m
Belgium (Fl.)	21.7	21.7	19.2	17.9	26.3
Belgium (Fr.)	21.7	21.7	19.2	17.9	26.3
Finland	17.3	17.3	17.3	17.3	
France	27.0	27.0	18.4	18.4	18.4
Ireland			22.0	22.0	
Italy	a	a	a	a	a
Portugal	30.0	28.0	31.3	31.6	31.6

4. There is no mandatory or formal amount of time that teachers must spend working, but there is a customary amount of time that all civil servants work.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
Australia	37.5				
Germany	38.5	38.5	38.5	38.5	38.5

5. Teachers' working hours are set at the local or school level. It is possible to calculate an average across these decision-making units.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
New Zealand	22.5				
United States		33.6	33.6	33.6	33.6

6. Teachers set their own working hours, based on the number of classes they are assigned to teach.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
New Zealand			25.0	26.0	

7. Other.

	ISCED 0	ISCED 1	ISCED 2	ISCED 3 general	ISCED 3 vocational
Mexico			25.0		

Source: OECD Education Database. See Annex 3 for notes.

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Table D3.3. Number of hours in the school week that 8th-grade students' mathematics teachers have formally scheduled for teaching and non-teaching activities (1995)

	Teaching activities	Non-teaching activities						Total hours
		Student supervision	Student counselling	Administrative duties	Individual curriculum planning	Co-operative curriculum planning	Non-student contact time	
Australia	18.7	2.8	0.3	1.1	0.5	0.1	1.3	24.7
Austria	r 16.4	m	m	m	m	m	m	m
Belgium	r 16.7	r 0.4	0.3	0.3	r 0.1	0.0	r 0.3	18.0
Canada	15.2	3.4	0.7	0.7	2.0	0.6	1.4	24.0
Czech Republic	15.5	1.5	0.6	1.6	4.7	0.3	1.3	25.5
Denmark	15.7	m	m	m	m	m	m	m
France	16.5	s 0.1	s 0.6	s 0.0	s 0.0	s 0.1	s 1.7	19.0
Hungary	m	1.8	2.6	1.6	4.8	m	2.2	12.9
Iceland	r 19.3	r 0.8	s 0.4	r 1.3	r 0.4	r 0.3	r 0.8	23.3
Ireland	21.4	0.5	0.1	0.5	0.0	0.0	0.2	22.7
Japan	13.8	1.9	1.6	1.9	2.3	0.3	1.9	23.8
Korea	13.6	4.9	2.2	3.0	2.8	0.4	1.2	28.0
Netherlands	20.5	m	m	m	m	m	m	m
New Zealand	19.0	2.0	0.3	1.3	0.5	0.1	1.5	24.6
Norway	12.0	0.8	r 0.4	r 0.6	m	m	m	13.8
Portugal	15.2	0.7	0.7	0.5	0.2	0.2	0.6	18.2
Spain	19.8	1.4	1.0	1.4	0.8	0.8	1.7	26.8
Sweden	17.8	2.0	0.1	0.9	2.4	0.9	1.1	25.3
Switzerland	17.6	m	m	m	m	m	m	m
United Kingdom[1]	s 16.1	s 0.2	s 0.2	s 0.5	s 0.1	s 0.1	s 1.7	18.9
United States	15.5	4.8	0.4	0.3	2.0	1.1	0.9	25.1

Note An "r" indicates that data for mathematics teachers are only available for 70-84% of 8th-grade students.
An "s" indicates that data for mathematics teachers are only available for 50-69% of 8th-grade students.

[1] Only England.

Source International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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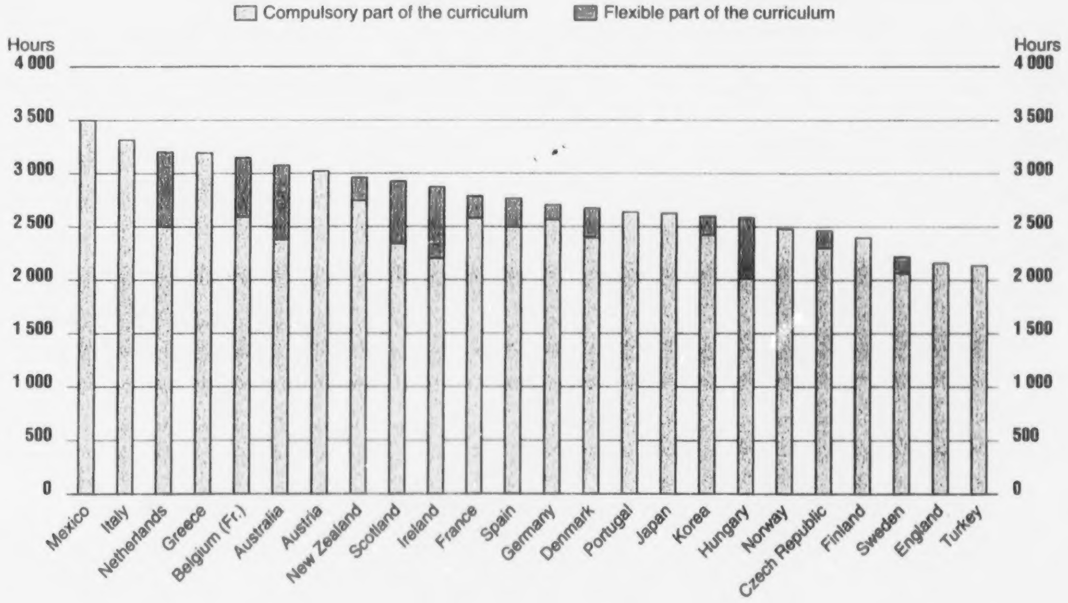
TOTAL INTENDED INSTRUCTION TIME FOR PUPILS IN LOWER SECONDARY EDUCATION

- Intended instruction time refers to the number of full hours of instruction during the three-year-period during which pupils are aged 12 to 14.
- Total intended instruction time varies considerably across countries. It is longest in Italy and Mexico (3 315 and 3 500 hours respectively), and shortest in Turkey and England (2 136 and 2 160 hours respectively).
- The difference between Mexico and Turkey (1 364 hours) corresponds to more than a full year of instruction in Mexico.

Chart D4.1. **Intended instruction time between the ages of 12 and 14 divided into compulsory and flexible parts of the curriculum (1998)**



Countries are ranked in descending order or the total intended instruction time between the ages of 12 and 14.

Source: OECD.

POLICY CONTEXT

Instruction time is the main resource invested in the process of education. Policy-makers seeking to improve educational outcomes often seek to increase the amount of time for which students are engaged in learning activities. However tight budgets and strong teachers' unions may restrict the changes that can be achieved by policy-makers.

The instruction time that can be devoted to each student is closely related to factors such as class size, teaching time (Indicator D3) and student/teaching staff ratios (Indicator B7). The optimal balance between these factors may vary for different subject areas and levels of education.

This indicator shows the total number of intended hours of instruction for all three grades in which the majority of pupils are 12, 13 and 14 years of age.

The indicator will compare intended instruction time for students, both compulsory time (*i.e.* core subjects that all students must take) and flexible time (when there is a choice of subject-matter). The total, aggregate, number of intended hours of instruction for all three grades in which the majority of pupils are 12, 13 and 14 years of age is presented, as well as the breakdown of intended instruction time by major subject areas. The indicator will also discuss the degree to which the "intended curriculum" applies to all streams in which 14-year-old students can be enrolled.

EVIDENCE AND EXPLANATIONS

The total, aggregate, number of intended hours of instruction between the ages of 12 and 14 is calculated by multiplying the total intended number of lessons in the three years by the duration of one lesson.

Intended instruction time refers to the number of hours during which pupils aged 12, 13 and 14 years are given instruction over three years in both the compulsory and the flexible parts of the curriculum. In many cases, the actual amount of time that students spend in instruction does not fully correspond to the intended instruction time. Time may be lost because of a lack of qualified substitutes for absent teachers or student absences. School closures for examinations, teachers' meetings or inclement weather may also reduce actual instruction time. Furthermore, intended instruction time can also vary from year to year. Changes to the curriculum or to the required number of teaching hours and variability in the length of holiday periods all directly increase or reduce intended instruction time. In some countries, there is even variation between regions or between different types of school.

Total intended instruction time for pupils aged 12 to 14-years inclusive, aggregated over three years, ranges from 2 136 hours in Turkey to 3 500 hours in Mexico. The mean over three years is 2 768 hours.

Intended instruction time in mathematics and science over 3 years ranges from 504 hours to 1 167 hours among OECD countries.

Among OECD countries, intended instruction time in mathematics and science over three years varies considerably from 550 hours or less in Finland, Norway and Turkey, to around 890 hours in Austria and New Zealand, and 1 167 hours in Mexico. The mean intended instruction time is 670 hours (Table D4.1*b*).

Across OECD countries, reading and writing in the mother tongue, mathematics, and science comprise 39 per cent of the total intended instruction time.

On average across OECD countries, about 39 per cent of instruction time is devoted to three basic subject areas: reading and writing in the mother tongue (15 per cent), mathematics (13 per cent) and science (11 per cent). The next highest percentages of instruction time are devoted to the modern foreign languages (11 per cent) and social studies (12 per cent). The smallest percentages of instruction time are devoted to vocational skills (2 per cent), religion (3 per cent) and technology (5 per cent). Arts and physical education receive 8 per cent each, and other subjects 5 per cent.

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Countries vary in the proportion of instruction time devoted to different subject areas.

In Denmark, Ireland, Italy and Sweden at least 20 per cent of intended instruction time is devoted to reading and writing in the mother tongue (in Ireland time devoted to teaching Irish and English is included), whereas in the Netherlands only 10 per cent of instruction time is devoted to this subject. In Germany 21 per cent of the instruction time is devoted to modern foreign languages, while in Australia, New Zealand and the United States this figure is only 6, 4 and 7 per cent, respectively.

In Mexico, the greatest proportion of instruction time is dedicated to science and social studies (19 and 18 per cent, respectively). In the Czech Republic, Ireland and Portugal social studies also receive 17 per cent or more of total instruction time, more than the OECD mean for social studies (12 per cent).

In 10 out of 26 OECD countries for which comparable data are available, 10 per cent or more of total intended instruction time is regarded as flexible. In the other countries, the time allotted to the different sections of the curriculum in lower secondary education is to a large extent prescribed.

Although the amount of time that students spend studying different subjects in lower secondary education is prescribed in most countries, some have a sizeable degree of flexibility.

In Austria, England, Finland, Greece, Italy, Mexico, Norway, Portugal, Turkey and the United States, the entire curriculum is prescribed (although students may have limited choice within broad prescriptions as in the United States, for example). In other countries a substantial part is flexible: Belgium (Flemish Community) (30 per cent), Australia, Ireland (both 23 per cent), Hungary, the Netherlands (22 per cent) and Scotland (20 per cent). This flexible part mainly comprises optional subjects (see Annex 3 for details). In some countries, curricula vary between regions or types of school.

In most countries, each of the streams in which a 14-year-old student can be enrolled has a prescribed curriculum.

In 18 out of 24 countries, there is a prescribed curriculum for each of the streams in which a 14-year-old student may be enrolled (see Annex 3 for details). In the other six countries there is some flexibility. In Austria, the data on intended instruction time apply to two-thirds of all students. Furthermore, Austrian schools are entitled to change the curriculum within a given framework. In the Flemish Community of Belgium and France, the data refer to general programmes. The intended instruction time for pre-vocational and vocational programmes is slightly different. In the Netherlands, one group of 14-year-olds in pre-vocational programmes have the option of spending more hours on vocational subjects, while others may learn an extra modern or classical language. In the Czech Republic, there is a range of educational programmes. In Italy, the total number of intended hours of instruction differs: 75 per cent of schools teach for 30 hours per week, while the other 25 per cent teach for 40 hours per week.

Organisation of instruction time

It remains an open research question whether students learn more by attending school for a greater number of "shorter" school weeks or by attending for longer hours over a smaller number of weeks. Some research has shown that

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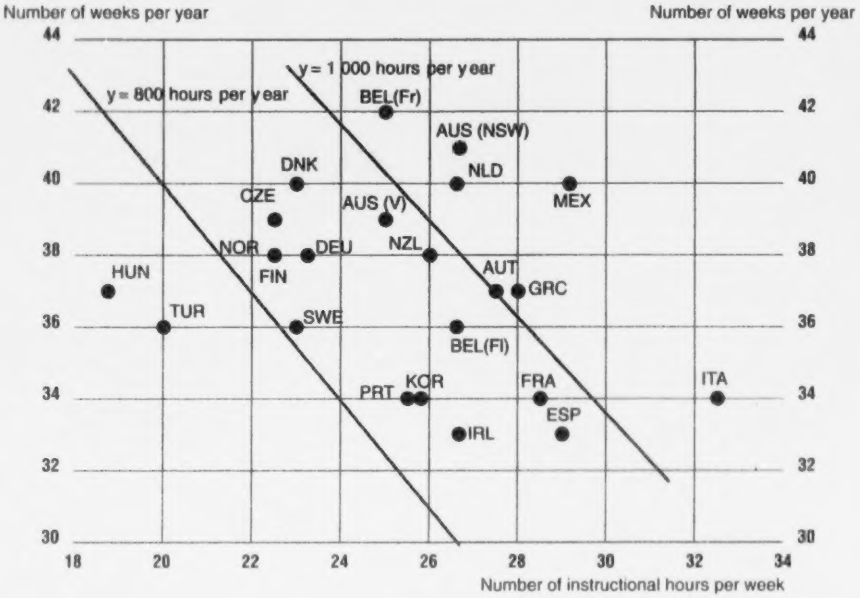
Chart D4.2. **Number of instructional hours per week and number of instructional weeks per year**



Note: For more details concerning the year of the data collection for each country, see sources in Annex 3.
Source: OECD.

Some research has shown that students can forget a significant amount of material over long school holidays. More weeks in the school year can be more costly, however, than more hours per week – although the latter can take away from teachers' preparation time.

students can forget a significant amount of material over long school holidays. More weeks in the school year can be more costly, however, than more hours per week – although the latter can detract from teachers' preparation time.

The average number of hours of instruction provided per school week ranges from around 20 in Hungary and Turkey to 28 hours or more in France, Greece, Italy and Mexico (Chart D4.2). On the other hand, the length of the school year can range from around 34 weeks or less in France, Ireland, Italy, Korea, Portugal and Spain to 40 weeks or more in Australia, Denmark, Mexico and the Netherlands.

DEFINITIONS

Intended instruction time refers to the number of hours per year for which pupils receive instruction in both the compulsory and the flexible part of the curriculum. Compulsory subjects are to be taught by each school and to be attended by each student. Optional subjects form the flexible part of the curriculum. Annex 3 gives more information on instruction time and curriculum in each country.

Data on instruction time are from the 1999 **OECD/INES** *survey on Teachers and the Curriculum and refer to the school year 1997/98.*

The total number of intended hours of instruction per year was calculated by multiplying the total number of classroom sessions per year by the duration of one session.

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The prescribed curriculum is the subject content defined by the government or the education system.

The prescribed curriculum is the subject content defined by the government or the education system. The prescribed curriculum is embodied in textbooks, in curriculum guides, in the content of examinations, and in policies, regulations, and other official statements issued to direct the education system. Data for the United Kingdom and the United States, however, are based on sample survey data and reflect the curriculum as it is implemented rather than as it is prescribed.

The classification of subject areas used in this indicator is explained in Annex 3.

The organisation of instruction time at ISCED 2 for 14 year-olds refers to the formal number of class hours (1 hour = 60 minutes) per year for instructional activities for students at ISCED level 2. The reference year is the school year 1997/98. If a country has no formal policy, the number of hours is estimated from survey data.

Instruction time includes only time that is compulsory. It does not include time for non-compulsory or quasi-compulsory subjects.

Hours lost when schools are closed for festivities and celebrations, such as national holidays, are excluded.

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Table D4.1a. Intended instruction time in hours per year for students aged 12 to 14 (1998)

	Ages			Total
	12	13	14	
Australia	1 022	1 027	1 027	3 076
Austria	987	987	1 048	3 022
Belgium (Fl.)	m	1 067	1 067	m
Belgium (Fr.)	1 048	1 048	1 048	3 145
Czech Republic	782	811	869	2 461
Denmark	840	900	930	2 670
England	720	720	720	2 160
Finland	686	855	855	2 396
France	833	975	975	2 783
Germany	860	921	921	2 702
Greece	1 064	1 064	1 064	3 192
Hungary	780	902	902	2 584
Ireland	957	957	957	2 872
Italy	1 105	1 105	1 105	3 315
Japan	875	875	875	2 625
Korea	867	867	867	2 601
Mexico	1 167	1 167	1 167	3 500
Netherlands	1 067	1 067	1 067	3 200
New Zealand	985	988	988	2 961
Norway	770	855	855	2 480
Portugal	878	878	878	2 635
Scotland	975	975	975	2 925
Spain	851	957	957	2 765
Sweden	741	741	741	2 222
Turkey	720	720	696	2 136
United States	m	m	980	m
Country mean	**899**	**937**	**944**	**2 768**

Source: OECD Education Database. See Annex 3 for notes.

Table D4.1b. Intended instruction time for mathematics and science in hours per year for students aged 12 to 14 (1998)

	Ages			Total
	12	13	14	
Australia	247	232	232	711
Austria	247	278	370	894
Belgium (Fl.)	m	167	167	m
Belgium (Fr.)	185	216	247	648
Czech Republic	203	203	261	666
Denmark	210	240	240	690
England	174	178	217	569
Finland	162	177	177	516
France	208	257	257	722
Germany	198	229	229	656
Greece	182	213	274	669
Hungary	194	222	250	666
Ireland	200	200	200	601
Italy	221	221	221	663
Japan	175	204	223	603
Korea	204	204	204	612
Mexico	367	433	367	1 167
Netherlands	200	200	200	600
New Zealand	320	240	320	880
Norway	171	200	171	542
Portugal	227	312	198	737
Scotland	195	195	195	585
Spain	224	198	198	620
Sweden	189	189	189	567
Turkey	168	168	168	504
United States	m	m	295	m
Country mean	211	223	233	670

Source: OECD Education Database. See Annex 3 for notes.

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Table D4.2 Instruction time per subject as a percentage of total intended instruction time for students aged 12 to 14 (1998)

	Reading and writing mother tongue	Mathematics	Science	Social studies	Modern foreign languages	Technology	Arts	Physical education	Religion	Vocational skills	Other	Total compulsory part	Flexible part
Australia	13	13	10	10	6	8	8	7	n	n	3	77	23
Austria	12	15	14	12	10	6	12	11	6	n	n	100	n
Belgium (Fl.)	13	13	3	6	14	6	3	6	6	n	n	70	30
Belgium (Fr.)	15	14	7	11	12	2	2	8	6	n	7	82	18
Czech Republic	14	14	13	18	11	n	9	7	n	4	5	94	6
Denmark	20	13	12	11	10	n	9	7	3	n	3	90	10
England	12	12	14	11	11	12	10	8	4	1	5	100	n
Finland	18	11	10	10	9	x	6	8	4	n	22	100	n
France	17	14	12	13	11	7	8	11	n	n	n	93	7
Germany	14	13	11	11	21	x	9	9	x	x	8	95	5
Greece	12	11	10	10	15	5	6	8	6	1	16	100	n
Hungary	13	13	13	10	10	n	6	6	n	3	3	78	22
Ireland	23	12	9	19	x	x	x	5	7	x	2	77	23
Italy	23	10	10	14	11	9	13	7	3	n	n	100	n
Japan	14	12	11	12	13	8	11	10	n	n	8	100	n
Korea	14	12	12	11	12	5	10	9	n	4	6	93	7
Mexico	14	14	19	18	9	9	6	6	n	3	3	100	n
Netherlands	10	10	8	11	14	5	7	9	n	n	3	78	22
New Zealand	18	16	14	14	4	8	4	11	n	5	n	93	7
Norway	16	13	9	11	16	n	8	10	7	n	10	100	n
Portugal	13	13	15	17	10	n	10	10	3	n	10	100	n
Scotland	10	10	10	10	10	10	10	5	5	n	n	80	20
Spain	19	12	11	11	8	5	14	9	x	n	2	90	10
Sweden	22	14	12	13	12	x	7	7	x	4	n	93	7
Turkey	17	13	10	7	13	n	3	3	7	10	17	99	n
United States	17	16	14	12	7	3	7	12	1	5	7	100	n
Country mean	**15**	**13**	**11**	**12**	**11**	**5**	**8**	**8**	**3**	**2**	**5**	**92**	**8**

Source: OECD Education Database. See Annex 3 for notes.

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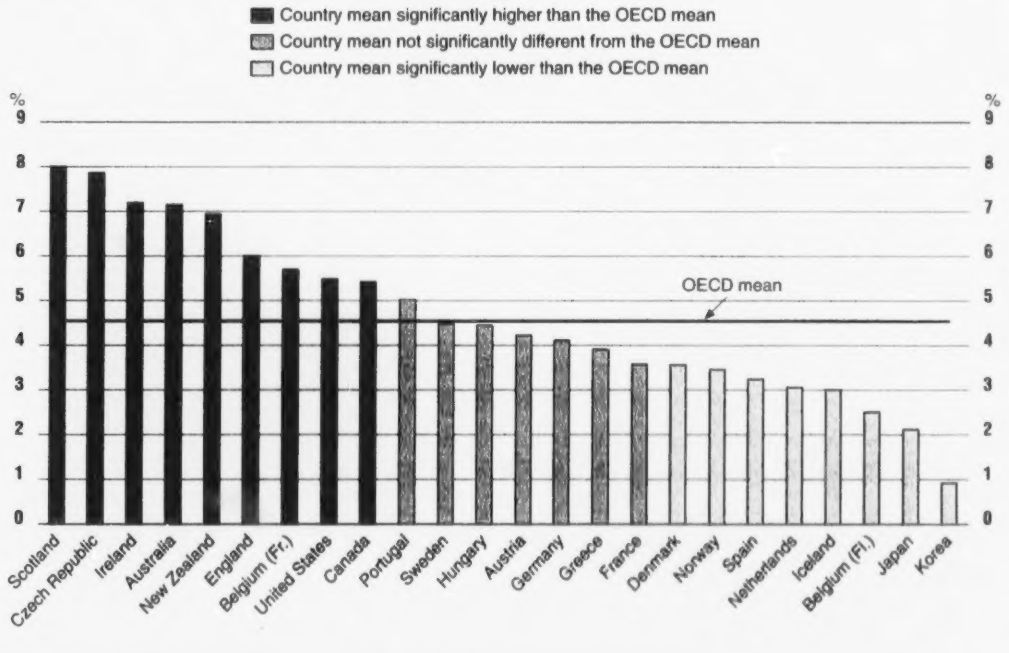
STUDENT ABSENTEEISM

- The average rate of student absenteeism across schools ranges from between 1 per cent in Korea to 8 per cent in the Czech Republic and Scotland.
- The percentage of 8th-grade students enrolled in schools that had a moderate degree of daily student absenteeism (5 per cent or more) ranged from under 5 per cent in Japan and Korea to over 75 per cent in Australia, the Czech Republic, Ireland, New Zealand and the United Kingdom.
- In most countries, school absenteeism is negatively associated with average mathematics performance of 8th-graders, even after controlling for the grade range in the schools.

Chart D5.1. **Percentage of 8th-grade students absent from school on a typical day for any reason (1995)**



Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

POLICY CONTEXT

High levels of student absenteeism during the school year can have a negative impact on students' opportunity to learn. This indicator will examine the average rate of absenteeism across schools, the percentage of schools in different countries that have a relatively high absenteeism rate (5 per cent or more) and whether these schools are associated with lower learning achievements. The indicator is based on data from the Third International Mathematics and Science Study (TIMSS).

EVIDENCE AND EXPLANATIONS

Student absenteeism is relatively uncommon in Japan and Korea.

High levels of student absenteeism and turnover during the school year can also have a negative impact on students' opportunity to learn. In TIMSS, head teachers were asked what percentage of students in their school were absent for any reason on a typical day. The percentage of 8th-grade students enrolled in schools that had a daily student absenteeism rate of 5 per cent or more ranged from under 5 per cent in Japan and Korea to over 75 per cent in Australia, the Czech Republic, Ireland, New Zealand and the United Kingdom.

In most countries, school absenteeism is negatively associated with the average mathematics performance of 8th-graders, even after controlling for the grade range in the schools. This suggests that relatively frequent absenteeism is harmful for students' learning achievement. However, such a causal relationship cannot directly be deduced from the data shown here since there might be factors such as the students' socio-economic background, simultaneously influencing absenteeism and performance. Moreover, it is clear that many other factors are important for determining students' performance.

DEFINITIONS

These data are based on the principal questionnaire administered as part of the Third International Mathematics and Science Study (IEA/TIMSS), undertaken by the International Association for the Evaluation of Educational Achievement (IEA) during the school year 1994/95.

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Table D5.1. **Mean mathematics achievement for students in 8th-grade by level of student absenteeism as reported by the school principal (1995)**

	Percentage of 8th-grade students absent from school on a typical day for any reason	Schools reporting 5% or more absent		Schools reporting 5% or less absent	
		Percentage of 8th-grade students	Mean mathematics achievement	Percentage of 8th-grade students	Mean mathematics achievement
Australia	r 7 (0.4)	r 76 (3.9)	519 (4.4)	24 (3.9)	556 (9.7)
Austria	4 (0.2)	46 (5.7)	546 (6.6)	54 (5.7)	533 (5.8)
Belgium (Fl.)	r 3 (0.3)	17 (6.4)	495 (10.4)	83 (6.4)	581 (5.5)
Belgium (Fr.)	r 6 (0.5)	r 52 (6)	512 (7.8)	48 (6)	548 (5.5)
Canada	5 (0.3)	r 59 (3.8)	523 (4)	41 (3.8)	533 (4.5)
Czech Republic	8 (0.3)	81 (4.3)	565 (6)	19 (4.3)	559 (7.3)
Denmark	s 4 (0.2)	r 41 (5.8)	494 (4.6)	59 (5.8)	508 (5.2)
England	r 6 (0.7)	r 76 (4.4)	494 (4.1)	24 (4.4)	536 (11.4)
France	r 4 (0.6)	r 28 (4.6)	539 (7)	72 (4.6)	540 (4.6)
Germany	s 4 (0.3)	s 37 (5.5)	515 (10.7)	63 (5.5)	512 (8.8)
Greece	4 (0.4)	31 (3.9)	477 (5.4)	69 (3.9)	489 (2.9)
Hungary	4 (0.2)	45 (4.2)	538 (5.8)	55 (4.2)	535 (3.9)
Iceland	3 (0)	12 (4.3)	486 (8.8)	88 (4.3)	490 (5.1)
Ireland	7 (0.4)	r 77 (4.6)	531 (6.5)	23 (4.6)	538 (10.3)
Japan	2 (0.1)	5 (2.3)	598 (26.6)	95 (2.3)	605 (1.9)
Korea	1 (0.2)	5 (1.8)	610 (15.3)	95 (1.8)	606 (2.6)
Netherlands	s 3 (0.4)	s 26 (6.8)	506 (29.3)	74 (6.8)	556 (7.4)
New Zealand	7 (0.4)	80 (2.9)	507 (4.9)	20 (2.9)	524 (11.8)
Norway	3 (0.2)	r 31 (4.1)	503 (4.6)	69 (4.1)	502 (3)
Portugal	5 (0.3)	r 44 (4.7)	447 (3.6)	56 (4.7)	460 (3.5)
Scotland	r 8 (0.5)	r 93 (2.8)	494 (5.5)	7 (2.8)	515 (13.4)
Spain	3 (0.2)	26 (3.8)	481 (5.1)	74 (3.8)	488 (2.8)
Sweden	r 4 (0.3)	r 45 (5.2)	518 (5.2)	55 (5.2)	520 (4.3)
Switzerland	m	r 13 (1.9)	557 (9.3)	87 (1.9)	545 (4.1)
United States	r 5 (0.5)	r 60 (4.6)	497 (5)	40 (4.6)	516 (6.4)
Country mean	**5**	**44**	**518**	**56**	**532**

Note: An "r" indicates that school data are available for 70-84% of schools or students, as applicable.
An "s" indicates that school data are avalaible for 50-69% of schools or students, as applicable.
() Standard errors appear in parentheses.
Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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DECISION-MAKING ABOUT THE CURRICULUM IN LOWER SECONDARY EDUCATION

- Decision-making about the curriculum falls along a continuum from highly centralised to localised at the school level.
- While it is highly centralised in Austria, Greece, Korea, Norway, Portugal and Turkey, it is concentrated at the state or intermediate levels in Belgium (French Community), Germany and Spain.
- In Finland, Ireland, Hungary, the Netherlands, New Zealand, Scotland and the United States, local authorities and/or schools are the dominant decision-makers regarding curriculum.

Chart D6.1. **Level of government at which different types of curriculum decisions are taken in lower secondary education (1998)**

Decision in consultation or within given framework:
❑ Central level ■ Intermediate level
◆ Local level ● School level

Decision in full autonomy:
❑ Central level ■ Intermediate level
◆ Local level ● School level

	ALL DECISIONS AT CENTRAL LEVEL		MOST DECISIONS AT CENTRAL LEVEL				DECISIONS SPLIT BETWEEN CENTRAL AND INTERMEDIATE LEVELS						MOST DECISIONS AT INTERMEDIATE LEVELS			DECISIONS AT LOCAL LEVEL AND BELOW		MOST OR ALL DECISIONS AT SCHOOL LEVEL				
	Greece	Turkey	Austria	Korea	Norway	Portugal	Czech Republic	Denmark	England	France	Italy	Sweden	Germany	Belgium	Spain	United States	Finland	Netherlands	New Zealand	Scotland	Ireland	Hungary
Choice of text books	❑	❑	●	●	●	●	●	●	●	●	●	●	●	●	●	◆	●	●	●	●	●	●
Design of programmes	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	■	■	■	◆	●	●	●	❑	●	●
Selection of programmes offered	❑	❑	❑	❑	❑	❑	●	❑	●	■	❑	◆	■	■	■	◆	●	●	●	●	●	●
Range of subjects taught	❑	❑	❑	❑	❑	❑	❑	●	❑	❑	❑	❑	■	■	■	◆	◆	❑	●	●	●	●
Definition of course content	❑	❑	❑	❑	❑	❑	❑	❑	❑	❑	●	●	■	■	●	◆	◆	●	❑	●	❑	●

Source: OECD.

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POLICY CONTEXT

This indicator examines the level at which different decisions regarding the curriculum are made.

An important factor in educational policy is the division of responsibilities between national, regional and local authorities, and schools. Placing more decision-making authority at lower levels has been a main aim of the restructuring and systemic reform of the educational system in many countries since the early 1980s. School-based or site-based management is intended to increase creativity and responsiveness to community needs. Site-based management typically involves increasing the decision-making authority of head teachers and, in some cases, the influence of teachers or department heads. While advocates of decentralisation emphasise the motivational and creative benefits of shared decision-making, critics are concerned that decentralisation of decision-making can make co-ordination between schools more difficult.

Decision-making about the curriculum falls along a continuum from highly centralised to localised at the school level.

School autonomy is seen both as stimulating responsiveness to local requirements and sometimes seen as creating mechanisms for choice that favour groups in society which already have more resources. One area of particular concern has been the curriculum, where high standards for all children have been advocated by many governments. Local control can lead to variation in standards. This indicator examines decision-making about five dimensions of the curriculum: 1) the design of education programmes; 2) the selection of programmes offered in schools; 3) the range of subjects taught in schools; 4) the definition of course content; and 5) the choice of textbooks. It considers both the level in the system at which decisions are made (national, intermediate, local and school) and the mode of decision-making (autonomous, after consultation with other levels in the education system, or within a framework set by a higher authority in the education system). The information reported is for decisions in lower secondary education.

EVIDENCE AND EXPLANATIONS

Decision-making about the curriculum tends to be highly centralised in Austria, Greece, Korea, Norway, Portugal and Turkey.

Decision-making about curriculum in 22 OECD countries falls along a continuum from highly centralised to localised at the school level. Curriculum decisions are most centralised in six countries – Austria, Greece, Korea, Norway, Portugal, and Turkey (Chart D6.1). In Greece and Turkey, all five curriculum decisions are made at the national level, while in the other four countries all decisions except those pertaining to the choice of textbooks are made at the national level. However, even in these countries, the national government provides a framework for schools to use in selecting textbooks.

The national government also plays a substantial role in curriculum decisions in six other countries: the Czech Republic, Denmark, England, France, Italy and Sweden.

The national government also plays a substantial role in curriculum decisions in six other countries – the Czech Republic, Denmark, England, France, Italy, and Sweden. In all six countries, the national government makes decisions about the design of school programmes. The central government is also dominant in decisions about the range of subjects taught and the definition of course content, but is less involved in the other two curriculum-related decision-making areas. However, schools are dominant in decisions about the choice of textbooks in these six countries with more centralised decision-making.

Curriculum decisions are concentrated at the state or intermediate level in three countries – Belgium (French Community), Germany and Spain, but schools are involved in some decisions in all three countries. State or

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intermediate governments are dominant in decisions about the design of school programmes and the selection of programmes offered, but schools play a greater role in decision-making in the other three areas. In fact, schools make decisions about the choice of textbooks in all three countries – autonomously in Belgium and within a framework set at the state level in Germany and Spain.

In Hungary, Ireland, the Netherlands, New Zealand and Scotland, schools are the dominant decision-makers regarding the curriculum.

In the other seven countries, decisions about the curriculum are more decentralised. In Finland and the United States, all or most curriculum decisions are made at the local level, but schools are the dominant decision-makers in Hungary, Ireland, the Netherlands, New Zealand and Scotland. However, even in countries in which decisions are concentrated at the school level, these decisions are often made within a framework set by the national government. Decisions about programmes offered and the definition of course content are most frequently made within a national framework, while decisions about textbooks are made autonomously at the school level in all five countries.

Central governments tend to make decisions about the design of school programmes and the range and definition of subjects taught.

While countries differ in their decision-making about curriculum, the patterns of decision-making are not consistent across the five decision-making areas. Central governments make decisions about the design of school programmes in 13 of the 22 countries, and about the range of subjects taught and the definition of course content in 12 countries. On the other hand, schools dominate decision-making on textbook selection in 20 of the 22 countries. However, these decisions about textbooks are not made autonomously in several of the countries. In Austria, the Czech Republic, Italy, Korea, Norway, and Portugal, textbook decisions are made in a framework established by the national government, while in Spain and Germany, state governments or intermediate levels establish the decision-making framework.

Decision-making within schools

Within schools, decision-making is shared between teachers, department heads and head teachers. As part of education reform, school-based or site-based management is intended to increase creativity and responsiveness to community needs. Site-based management typically involves increasing the decision-making authority of head teachers and, in some cases, the influence of teachers or department heads. While advocates of decentralisation emphasise the motivational and creative benefits of shared decision-making, critics worry that decentralisation of decision-making can make co-ordination between schools more difficult.

In most countries surveyed in 1994-95, head teachers were likely to rate themselves as having primary responsibility over determining the range of courses offered.

In the Third International Mathematics and Science Study (TIMSS), head teachers of schools enrolling 8th-grade students were asked who they thought had primary responsibility for making certain types of decisions. Decisions regarding curriculum organisation were reported to be primarily made at the school level. In 14 out of 20 countries, head teachers were most likely to rate themselves as having primary responsibility over determining the range of courses offered. Exceptions to this pattern were France, Greece, and Spain, where most head teachers felt that decisions on courses offered were not a school responsibility, and Austria and Switzerland, where ordinary teachers were considered most likely to make these decisions (Table D6.2).

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Determining course content was generally considered more the domain of teachers and department heads, although the majority of head teachers in France, Greece and Ireland did not consider this a school-level decision. Teachers were reported as being most involved in choosing students' textbooks in more than three out of four countries, although other actors were important as well. In Greece, Japan and Switzerland, most head teachers reported that textbook decisions were made outside the schools. Textbook selection was primarily made by department heads in Australia and New Zealand and in between 30 and 40 per cent of schools in the Czech Republic, Germany, the Netherlands, and Portugal. Teachers were also reported as having primary responsibility for establishing homework policies in the majority of schools in most countries, although nearly half of all head teachers claimed this job for themselves in the Netherlands and New Zealand.

Determining course content was generally considered more the domain of teachers and department heads.

Establishing student grading policies fell within the domain of the head teacher in some schools, although in others these decisions were made by either the school's governing board, department heads, or the teachers themselves.

DEFINITIONS

This indicator shows the percentage of educational decisions taken at specific levels in public lower secondary education. Decentralisation is concerned with the division of powers between levels of government. This concept embraces two different dimensions: 1) the locus of decision-making, that is, which level has decision-making authority; and 2) the mode of decision-making, which relates to the degree of autonomy or "shared" decision-making.

Data are from the 1998 OECD/INES survey on the Locus of Decision-making in Education.

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Table D6.1. **Level of government at which different types of decisions about curriculum are taken in public lower secondary education (1998)**

	Choice of textbooks	Design of programmes	Selection of programmes offered	Range of subjects taught	Definition of course content
Austria	**School** Framework at central level	**Central** Consultation with state level	**Central** Consultation with state level	**Central** Consultation with state level	**Central** Consultation with state level
Belgium	**School** Autonomous	**Sub-regional** Framework at state level	**Sub-regional** Framework at state level	**Sub-regional** Framework at state level	**Sub-regional** Framework at state level
Czech Republic	**School** Framework at central level	**Central** Framework at central level	**School** Framework at central level	**Central** Framework at central level	**Central** Framework at central level
Denmark	**School** Autonomous	**Central** Autonomous	**Central** Autonomous	**School** Framework at central level	**Central** Autonomous
England	**School** Autonomous	**Central** Autonomous	**School** Framework at central level	**Central** Framework	**Central** Framework
Finland	**School** Autonomous	**School** Framework at central level	**School** Framework at central level	**Local** Framework at central level	**Local** Framework at central level
France	**School** Autonomous	**Central** Autonomous	**Central** Consultation with sub-regional level	**Central** Autonomous	**Central** Autonomous
Germany	**School** Framework at central level	**State** Autonomous	**State** Consultation with local and school levels	**School** Framework at state level	**State** Autonomous
Greece	**Central** Consultation with school	**Central** Consultation with school	**Central** Consultation with school	**Central** Consultation with school	**Central** Consultation with school
Hungary	**School** Autonomous	**School** Other	**School** Consultation with local level	**School** Other	**School** Framework at central level
Ireland	**School** Autonomous	**School** Framework	**School** Framework at central level	**School** Framework at central level	**Central** Other
Italy	**School** Framework at central level	**Central** Autonomous	**Central** Autonomous	**Central** Autonomous	**School** Framework at central level
Korea	**School** Framework at central level	**Central** Autonomous	**Central** Autonomous	**Central** Autonomous	**Central** Autonomous
Netherlands	**School** Autonomous	**School** Framework at central level	**School** Framework at central level	**Central**	**School** Framework at central level
New Zealand	**School** Autonomous	**School** Framework at central level	**School** Framework at central level	**School** Framework at central level	**Central** Framework at central level
Norway	**School** Framework at central level	**Central** Autonomous	**Central** Autonomous	**Central** Autonomous	**Central** Autonomous
Portugal	**School** Framework at central level	**Central** Consultation with school level	**Central** Consultation with school level	**Central** Consultation with school level	**Central** Consultation with school level
Scotland	**School** Autonomous	**Central** Consultation with local level	**School** Framework at central level	**School** Framework at local/ central level	**School** Framework at local/ central level
Spain	**School** Framework at state level	**State** Framework at central level	**State** Autonomous	**State** Framework at central level	**School** Framework at state level
Sweden	**School** Autonomous	**Central** Autonomous	**Local** Autonomous	**Central** Other	**School** Autonomous
Turkey	**Central** Framework	**Central** Framework	**Central** Framework	**Central** Framework	**Central** Framework
United States	**Local** Autonomous	**Local** Framework at state level	**Local** Consultation with school level	**Local** Autonomous	**Local** Autonomous

Source: 1998 OECD-INES survey on the Locus of Decision-making in Education.

Table D6.2. **Distribution of responsibility for curricular and school organisation according to the principal's perceptions (1995)**[1]

DH = Department head
NSR = Not a school responsibility
T = Teachers
SGB = School's governing board
P = Principal

	Curricular organisation			School organisation			
	Choosing textbooks	Determining course content	Determining course offered	Establishing disciplinary policies	Establishing student grading policies	Placing students in classes	Establishing homework policies
Australia	r DH (88%)	r DH (76%)	r P (70%)	r P (64%)	r DH (61%)	r DH (85%)	r DH (51%)
Austria	T (85%)	T (66%)	r T (58%)	T (45%), SGB (42%)	T (60%)	P (94%)	T (74%)
Belgium	r T (76%)	r T (44%), NSR (33%)	r P (80%)	r P (75%)	r SGB (41%), P (32%)	r P (63%)	r T (48%), SGB (30%)
Canada	r T (50%)	r NSR (35%), T (34%)	r P (38%), NSR (31%)	r P (73%)	r P (35%)	r P (74%)	r T (58%), P (33%)
Czech Republic	T (53%), DH (39%)	NSR (36%)	P (93%)	P (79%)	T (41%)	P (86%)	T (67%)
Denmark	r T (83%)	r P (63%)	r P (74%)	r SGB (90%)	SGB (81%)	r P (90%)	r T (84%)
France	T (96%)	NSR (81%)	r NSR (69%)	P (100%)	T (89%)	P (84%)	T (96%)
Germany	s T (65%), DH (32%)	s T (65%), DH (34%)	s P (73%)	s T (78%)	s T (66%)	s P (97%)	s T (92%)
Greece	NSR (91%)	NSR (83%)	NSR (75%)	SGB (80%)	DH (42%), NSR (39%)	SGB (47%), P (43%)	DH (79%)
Hungary	T (93%)	T (75%)	SGB (57%)	P (58%), SGB (34%)	SGB (47%), T (44%)	SGB (44%), P (42%)	T (90%)
Iceland	T (85%)	r T (84%)	r P (73%)	r P (82%)	r P (65%), T (35%)	P (91%)	r T (74%)
Ireland	T (85%)	NSR (56%), T (34%)	P (71%)	r P (75%)	r P (50%), T (40%)	P (66%)	T (77%)
Japan	NSR (62%)	P (44%)	P (53%)	P (75%)	P (43%), DH (38%)	P (65%)	T (78%)
Korea	T (72%)	T (73%)	P (40%), T (35%)	DH (84%)	DH (63%)	DH (60%)	T (93%)
Netherlands	r T (56%), DH (41%)	r T (72%)	r P (75%)	r P (81%)	s P (60%)	r P (77%)	r P (45%), T (39%)
New Zealand	DH (92%)	DH (83%)	P (84%)	P (80%)	P (49%), DH (46%)	DH (67%)	DH (46%), P (43%)
Portugal	T (68%), DH (32%)	T (42%), DH (35%)	m	r P (74%)	T (50%)	P (74%)	T (90%)
Spain	T (73%)	T (57%)	NSR (58%)	SGB (71%)	T (71%)	P (52%), T (32%)	T (68%)
Sweden	T (86%)	T (81%)	P (55%)	SGB (39%), P (34%)	P (52%)	P (86%)	T (78%)
Switzerland	r NSR (49%), T (35%)	r T (63%)	r T (39%)	r T (41%), P (36%)	T (72%)	r P (62%)	r T (71%)
United States	r T (54%)	r T (49%)	r P (40%), SCB (39%)	r P (54%), SGB (35%)	r SGB (40%), T (37%)	r P (78%)	r T (60%)

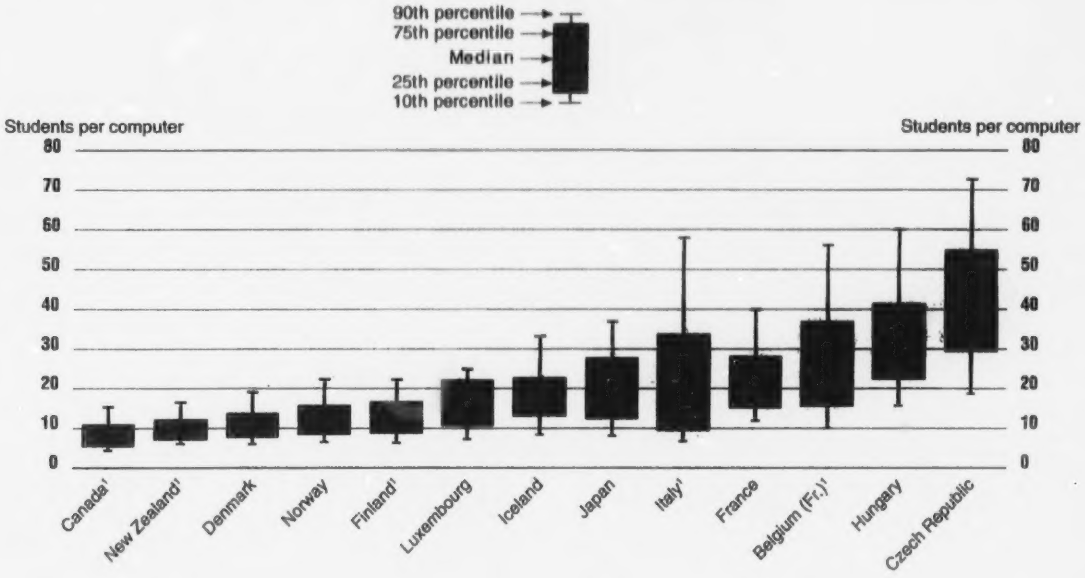
Note Data are weighed by the number of 8th-grade students within the schools.
An "r" indicates that the non-response rate is beween 16 to 30%.
An "s" indicates that the non-response rate is beween 31 to 50%.
[1] All the percentages superior or equal to 30% are presented in this table.
Source International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

COMPUTERS IN SCHOOLS AND THEIR USE

- OECD economies are increasingly dependent on technological knowledge and skills in the labour force. Measures of student access to information technology can be an indicator of how well schools are responding to technological change.
- The number of students per computer is five times greater in the Czech Republic than in the typical school in Canada. Variation between schools is greatest in Belgium (French Community), the Czech Republic, Hungary and Italy.

D7

Chart D7.1. **Ratio of students to computers in lower secondary education, for schools with computers (1998-1999)**



1. Country did not satisfy all sampling criteria.

Countries are ranked in ascending order of the median of the ratio of students to computers.

Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

POLICY CONTEXT

OECD economies are increasingly dependent on technological knowledge and skills in the labour force. Students with little or no exposure to information technology in school may face difficulties in making a smooth transition to the modern labour market. Although the issue of how computers should be used by students and teachers so as to maximise students' learning outcomes is a matter of debate, measures of student access to information technology can be an indicator of how well schools are responding to technological change.

This indicator shows the number of students per computer as well as principals' reports of how information and communication technology (ICT) is used.

EVIDENCE AND EXPLANATIONS

Among the 13 OECD countries participating in the Second IEA Information Technology in Education Study (IEA/SITES), Canadian lower secondary students tend to have the best access to computers (a typical school having one computer for every eight students and 90 per cent of schools having student/computer ratios of 15 to 1 or less). Lower secondary schools in Denmark, Finland, Luxembourg, Norway and New Zealand have slightly fewer resources, with the typical school having between 9 and 14 students per computer and 90 per cent of schools having student/computer ratios of 25 to 1 or less. The ratio of students per computer is higher in Belgium (French Community), France, Iceland, Italy and Japan (between 18 and 23 to 1), and about one out of ten schools in Belgium (French Community) and Italy have student/computer ratios higher than 55 to 1. Lower secondary schools in the Czech Republic and Hungary have the fewest computers, the typical school having between 30 and 39 students per computer (Table D7.1).

The number of students per computer is five times greater in the Czech Republic than in the typical school in Canada.

More than 90 per cent of lower secondary students in Canada, Finland, Iceland and New Zealand attend schools that have access to email/Internet for instructional purposes. In Denmark, Luxembourg and Norway, between 75 and 85 per cent of students are enrolled in schools with either email/Internet access, while the proportion in France, Italy and Japan is between 55 and 75 per cent. Fewer than 45 per cent of lower secondary students in Belgium (French Community), the Czech Republic and Hungary are enrolled in schools that have access to the Internet (Table D7.2).

Nearly all lower secondary students are enrolled in schools that have access to the Internet in Canada, Finland and Iceland.

Between a quarter and three quarters of students are enrolled in schools where the information technology specialist reported that insufficient simultaneous Internet access was a major obstacle to realising the school's ICT objectives.

Goals for ICT usage

As part of IEA/SITES, principals were asked about their policy goals relating to ICT. At the lower secondary level, there was wide variation between countries in responses regarding two goals: whether there should be "one or more computers available in every classroom" and whether students should use email. While about two-thirds or more of lower secondary students' principals in Finland, Iceland, Luxembourg and Norway indicated that a computer in every classroom was a policy goal, only about one out of ten students' principals in the Czech Republic and Japan stated that this was a policy goal. Use of email was a goal for over 85 per cent of students in Finland, Iceland and Luxembourg while less than a third of students' principals indicated that this

The degree to which lower secondary principals see "a computer in every classroom" and "students using email" as policy goals varies between countries.

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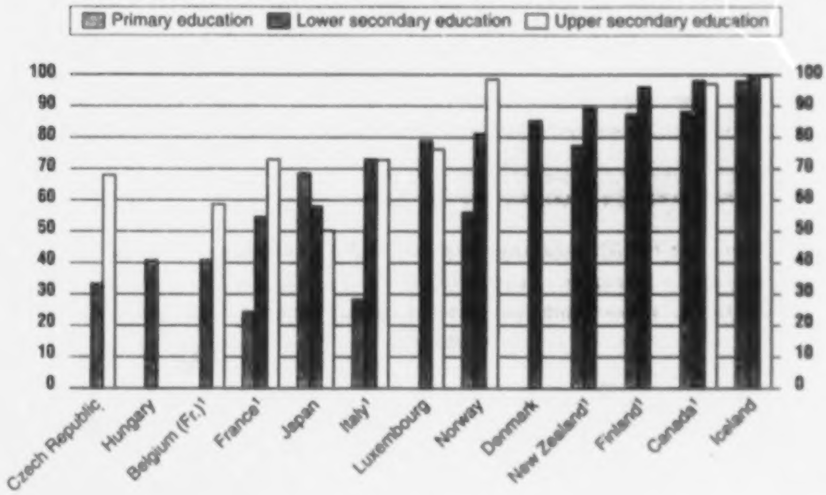
Chart D7.2. **Percentage of students in schools using computers with access to e-mail/Internet for instructional purposes, by level of education (1998-1999)**

While nearly all lower secondary students are enrolled in schools that have access to the Internet in Canada, Finland and Iceland, nearly 6 out of 10 students in Belgium (French Community), the Czech Republic and Hungary are in schools with no Internet access.



1. Country did not satisfy all sampling criteria.

Countries are ranked in ascending order of the percentage of students with access to e-mail/Internet in lower secondary education.

Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

was a policy goal in the Czech Republic and Japan – the two countries with the largest number of students enrolled in schools where no students are using email – 78 and 75 per cent, respectively (Tables D7.3 et D7.4).

Teachers using computers in teaching is a more common policy goal.

In all countries, three out of four students' principals reported that it is a policy goal for teachers to use computers in teaching. With the exception of the Czech Republic and Japan, eight out of ten students' principals reported that it is a policy goal for students to use computers as supportive learning aids (*e.g.* searching, analysing, and presenting information).

The link between ICT and other instructional goals appears weak in many schools.

As part of IEA/SITES, principals were also asked how important certain goals were in determining how computers were used at their schools. In general, only between a third and half of lower secondary students' principals felt that the following goals were *very important*: to prepare students for future jobs; to promote active learning strategies; to individualise students' learning experiences; to develop students' independence and responsibility for their own learning; and to make the learning process more interesting. Even fewer students' principals said that improving students' achievement, encouraging more co-operative and project-based learning and giving students drill and practice exercises were very important for determining how computers were used. The degree to which these goals were considered very important by principals varied between countries, however. For example, while improving students' achievement was a very important goal for about half of lower secondary students' principals in Canada and New Zealand (42 and 57 per cent, respectively). 15 per cent or fewer students' principals said that this goal was an important element of ICT usage in Belgium (French Community), the Czech Republic, Denmark, Hungary, Japan and Norway (Table D7.4).

Use of ICT *in teaching and learning*

ICT has primarily helped students to realise goals that are computer-oriented.

Principals were also asked about the extent to which ICT had been used to realise certain aspects of teaching and learning. The principals' responses imply that ICT has helped at least some students to learn to search for information, process data, and present information. About two-thirds or more of principals in Canada, Hungary and Luxembourg reported that ICT had largely helped students in this way, while only about one out of five principals in Belgium (French Community), Iceland and Japan reported this (Table D7.5).

ICT appears to have been less helpful in realising other types of learning activities.

Fewer students' principals tended to report that ICT had helped considerably in other kinds of teaching activities. For example, on average across countries, fewer than two out of ten students' principals reported that ICT had more often than not provided weaker students with additional teaching; developed students' abilities to undertake independent learning; or helped students to work on lessons at their own pace. Responses were more positive in Canada, the Czech Republic, Denmark and Hungary (Canada and Denmark having a relatively low number of students per computer and the other two countries a relatively high number).

Principals' reports on the major obstacles to realising ICT *objectives*

Most students' principals felt that a lack of computers was an obstacle to achieving their ICT objectives.

Lack of computers appears to be an obstacle to achieving ICT objectives in the schools attended by most students in the OECD countries participating in IEA SITES. Between 54 and 85 per cent of lower secondary students were enrolled in schools where the principal reported that computer availability was a major obstacle to the realisation of their school's computer-related goals.

The degree to which students' principals see other problems as barriers varies widely between countries. For example, the percentage of students' principals who thought that teachers having insufficient time to prepare lessons in which computers were used was a major obstacle to attaining ICT goals was lower than 20 per cent in Denmark, but higher than 70 per cent in Japan and New Zealand. While only one-third of students' principals in Iceland identified difficulties in integrating computers into classroom teaching as a major problem, this was the case for about 80 per cent in France and Luxembourg.

Teachers' lack of knowledge or skills in using computers is generally perceived to be a bigger problem than lack of interest.

In all countries, students' principals reported that teachers' lack of knowledge/skills in using computers for instructional purposes was a bigger problem than a perceived lack of interest (Table D7.6). There appeared to be greater lack of interest or willingness among teachers in the Czech Republic, Luxembourg and France than in Canada, Denmark, Hungary, New Zealand and Norway.

Staff development

Professional support for teachers in making the best use of information technology is a critical component of effective ICT use. OECD studies of ICT use have indicated that successful deployment and use of ICT in the classroom still largely depends on highly motivated, pioneering principals and teachers. A number of studies have shown that computer literacy remains generally low among teachers.

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The most common means for teachers to learn about ICT *is through informal contacts or through the school's computer co-ordinator or technical assistant.*

Training teachers in the latest information technology is a continuing process, rather than a single event. In order to gain insight into this process IEA/SITES asked the person who was best informed about computer facilities and practices in each school surveyed about the use of computers and about how knowledge of ICT in education is transferred between teachers. The most common means of communication is through informal contacts or via the computer co-ordinator or technical assistant. The degree to which ICT knowledge is acquired from organised courses varies widely between countries. In Denmark, France, Iceland and Luxembourg about half of lower secondary students are in schools with no organised structure for the exchange of ICT information.

While it is quite normal for a teacher who has attended a course to share this information in turn with other teachers at his or her school in the form of a course in Belgium (French Community), this is a relatively uncommon practice in schools in the Czech Republic, Finland, France, Iceland, Japan and Norway. Furthermore, it appears relatively uncommon in France for students' teachers to learn about ICT through in-school courses, while this practice is considerably more common in Denmark, Italy, New Zealand and Norway. These data do not provide any information, however, regarding the amount of time that teachers are exposed to ICT instruction (Table D7.7).

DEFINITIONS

Data are from the Second Information Technology in Education Study (SITES), *run under the auspices of the* International Association for the Evaluation of Educational Achievement (IEA), *and refer to* 1998.

These data are from Module-1 of the Second Information Technology in Education Study (SITES), an international comparative investigation of the use of Information and Communication Technologies in primary and secondary education in 26 countries undertaken in 1998 by the International Association for the Evaluation of Educational Achievement (IEA). The indicator refers to students in lower secondary schools, the majority of whom were aged 14 in the eighth month of the school year. The instrument used in the SITES Module-1 survey was a school questionnaire consisting of a section to be completed by the principal of the school (covering aspects such as school organisation, school policies, readiness and staff development with regard to ICT) and a section for a person who is most knowledgeable with regard to the infrastructure and use of ICT in the school. Responses by principals and technology specialists are weighted by the number of students enrolled in the school.

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Table D7.1. **Ratio of students to computer in lower secondary education, for schools with computers (1998-1999)**

	10th percentile	25th percentile	Median	75th percentile	90th percentile
Belgium (Fr.)[1]	10	16	23	37	56
Canada[1]	4	6	8	11	15
Czech Republic	19	29	39	55	73
Denmark	6	8	11	14	19
Finland[1]	6	9	12	17	22
France	12	15	21	28	40
Hungary	16	22	30	41	60
Iceland	8	13	18	23	33
Italy[1]	7	9	20	34	58
Japan	8	12	19	28	37
Luxembourg	7	11	14	22	25
New Zealand[1]	6	7	9	12	16
Norway	7	8	12	16	22

1. Country did not satisfy all sampling criteria.
Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

Table D7.2. **Percentage of students in schools using computers with access to e-mail/Internet for instructional purposes, by level of education (1998-1999)**

	Primary education	Lower secondary education	Upper secondary education
Belgium (Fr.)[1]	m	41	59
Canada[1]	88	98	97
Czech Republic	m	33	68
Denmark	m	85	m
Finland[1]	87	96	m
France	24	55	73
Hungary	m	41	m
Iceland	98	100	100
Italy[1]	28	73	73
Japan	69	58	50
Luxembourg	m	79	76
New Zealand[1]	77	89	m
Norway	56	81	98

1. Country did not satisfy all sampling criteria.
Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

Table D7.3. **Percentages of teachers (from the grade range) and students (at the end of the target grade) who have used e-mail in lower secondary schools (1998-1999)**

	% Teachers using e-mail						% Students using e-mail					
	None	Under 10%	11-25%	26-50%	51-75%	76-100%	None	Under 10%	11-25%	26-50%	51-75%	76-100%
Belgium (Fr.)[1]	65	18	12	4	n	n	69	10	9	5	4	2
Canada[1]	18	23	20	17	14	9	18	4	8	14	16	41
Czech Republic	80	11	7	2	0	n	78	2	3	4	3	10
Denmark	15	21	22	21	13	7	16	12	12	9	16	35
Finland[1]	5	12	30	27	20	7	5	1	2	10	21	63
France	59	29	9	2	0	0	62	12	9	7	3	6
Hungary	69	19	5	6	0	1	67	3	6	4	4	15
Iceland	41	11	12	11	10	16	38	5	4	2	7	43
Italy[1]	44	29	16	6	3	1	54	25	8	6	3	3
Japan	75	19	5	1	n	n	75	8	3	2	1	12
Luxembourg	3	58	26	13	n	n	3	17	31	3	n	45
New Zealand[1]	27	26	22	17	3	5	27	18	12	10	6	28
Norway	22	19	22	20	13	4	25	15	12	11	12	25

Note: All statistics are based on schools using computers.
1. Country did not satisfy all sampling criteria.
Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

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Table D7.4. **Importance of particular instructional objectives (A1-A8) and the presence of policy goals (B1-B8) in lower secondary education, as indicated by school principals, expressed as a percentage of students (1998-1999)**

	A1 Prepare students for future jobs	A2 Improve student achievement	A3 Promote active learning	A4 Individualise learning experience	A5 Encourage co-operative learning	A6 Develop independent learning	A7 Give drill and practice exercises	A8 Make learning more interesting	B1 More computers in every class	B2 Teachers use computers for instruction	B3 Use by retarded students	B4 Encourage independent learning	B5 Use as supportive learning aids	B6 Students use e-mail	B7 Students access external databases	B8 Co-operation with other schools	Objectives emerging	Objectives traditionally important
Belgium (Fr.)¹	37	14	51	44	26	51	23	32	24	91	83	62	83	41	78	56	51 (1.5)	68 (1.4)
Canada¹	45	42	50	33	22	32	12	51	58	78	72	70	84	59	82	54	57 (0.7)	65 (0.7)
Czech Republic	48	12	40	28	9	35	33	40	12	78	60	65	68	31	46	55	61 (1.1)	59 (1.3)
Denmark	38	8	42	40	37	38	34	33	47	88	77	68	89	62	84	50	55 (1.3)	66 (1.3)
Finland¹	42	17	22	25	19	28	11	26	74	96	87	92	98	94	98	87	52 (1.1)	72 (1.0)
France	21	28	36	35	21	44	30	39	40	94	86	78	91	50	75	57	51 (1.3)	67 (1.3)
Hungary	64	11	15	19	8	36	14	28	37	89	60	82	91	76	85	84	60 (1.1)	65 (1.2)
Iceland	66	22	34	34	31	42	37	55	89	82	96	82	97	85	93	70	68 (1.0)	70 (1.2)
Italy¹	50	28	43	23	29	28	47	25	35	93	50	72	87	46	72	58	66 (1.4)	65 (1.7)
Japan	10	2	54	44	18	29	6	37	11	81	38	67	59	23	36	31	32 (1.4)	58 (1.5)
Luxembourg	32	n	14	24	26	37	15	29	74	86	72	62	100	86	100	86	41 (3.6)	67 (2.7)
New Zealand¹	31	57	54	27	16	42	7	39	47	87	78	75	95	74	88	56	55 (0.9)	67 (1.1)
Norway	26	15	33	38	22	26	5	40	63	93	99	87	93	71	90	69	45 (0.4)	68 (0.4)

Note: All statistics are based on schools using computers.
() Standard errors appear in parentheses.
1. Country did not satisfy all sampling criteria.
Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

Table D7.5. **Realisation of instructional activities largely with the help of ICT in lower secondary education, as indicated by school principals, expressed as a percentage of students (1998-1999)**

	1. Independent learning by students	2. Weaker students: additional instruction	3. Differences in entrance level	4. Students learn info-search	5. Emphasis on skills development	6. Same materials, same pace	7. Teachers follow all students' activities	8. Students responsible for own learning	9. Students work at own pace	10. Co-operative projects	11. Student self-assessment	12. Students learn by doing	13. Parts of school subjects combined	ICT opportunities emerging	ICT opportunities traditionally important
Belgium (Fr.)¹	7	7	5	24	7	4	3	12	16	9	2	9	6	37 (1.6)	25 (1.7)
Canada¹	28	19	11	68	24	8	48	12	20	24	4	34	16	56 (0.6)	57 (0.6)
Czech Republic	40	12	32	48	44	14	40	24	46	14	8	43	36	51 (1.7)	55 (1.8)
Denmark	24	30	18	58	26	2	8	5	33	45	3	26	24	62 (0.9)	46 (1.0)
Finland¹	16	4	9	47	22	8	26	12	21	11	n	38	9	51 (1.0)	51 (1.3)
France	15	20	10	26	13	6	12	7	19	14	3	21	12	44 (1.3)	42 (1.4)
Hungary	39	9	30	72	31	11	24	20	40	24	2	38	30	56 (1.4)	47 (1.6)
Iceland	5	22	19	19	19	8	22	8	26	8	3	11	2	47 (1.4)	46 (1.9)
Italy¹	10	13	5	35	23	6	12	4	11	15	4	33	21	41 (1.7)	43 (1.7)
Japan	12	4	3	19	17	8	17	9	18	11	1	17	4	31 (1.5)	41 (1.6)
Luxembourg	12	n	18	64	33	19	29	6	17	19	6	39	22	46 (3.1)	56 (3.7)
New Zealand¹	12	11	7	53	14	4	32	6	13	10	2	20	9	53 (1.1)	53 (0.9)
Norway	16	45	9	55	7	2	2	5	11	21	1	20	15	53 (0.4)	32 (0.4)

Note: All statistics are based on schools using computers.
() Standard errors appear in parentheses.
1. Country did not satisfy all sampling criteria.
Source: International Association for the Evaluation of Educational Achievement (IEA)/SITES.

Table D7.6. Major obstacles in realising the school's ICT related objectives as reported by school principals, expressed as a percentage of lower secondary students (1998-1999)

	1 Not enough computers available	2 Not enough copies of software	3 Insufficient variety of software	4 Insufficient teacher time	5 Difficult to integrate into teaching	6 Not enough supervisory staff	7 Hard to schedule computing time	8 Difficult use for low achieving students	9 Internet no time in the school schedule	10 Internet no time for teachers to explore	11 Not enough space to locate	12 Lack of interest of teachers	13 Teachers lack knowledge/skills	14 Not enough training opportunities	15 No plan to prevent theft/vandalism	16 Lack of support from school board	17 Telecom infrastructure is weak	18 Other major obstacles
Belgium (Fr.)[1]	85	75	55	47	67	65	60	16	56	51	37	27	73	37	19	1	22	4
Canada[1]	69	46	55	69	57	41	68	12	21	61	27	21	64	62	8	17	32	6
Czech Republic	83	36	52	57	67	52	52	13	34	32	28	45	69	19	14	29	11	12
Denmark	65	34	53	17	65	39	40	32	37	52	31	7	65	41	18	8	5	2
Finland[1]	72	37	48	49	46	40	70	13	21	42	28	30	79	38	6	14	7	3
France	72	66	54	48	76	55	58	20	47	45	27	41	85	48	9	3	18	11
Hungary	70	55	56	46	57	44	49	13	35	39	26	18	68	41	6	n	29	8
Iceland	63	32	52	50	32	50	74	4	37	51	23	25	40	39	4	14	19	5
Italy[1]	54	50	11	57	57	49	42	17	53	51	31	26	45	50	18	9	26	6
Japan	63	51	67	70	42	60	45	10	41	3	15	29	60	49	12	25	41	4
Luxembourg	65	33	14	41	81	83	62	53	70	23	46	59	80	29	22	17	9	26
New Zealand[1]	64	38	34	76	70	26	71	13	26	63	34	18	69	54	6	1	11	10
Norway	77	34	52	54	66	39	42	12	28	36	17	17	70	49	14	27	14	m

Note. All statistics are based on schools using computers.

1. Country did not satisfy all sampling criteria.

Source. International Association for the Evaluation of Educational Achievement (IEA)/SITES.

Table D7.7. Different ways that ICT knowledge is transfered among teachers in lower secondary education, expressed as a percentage of students (1998-1999)

	1 Via informal contacts/communication	2 Via school's ICT working group	3 Regular item at staff meetings	4 Via a regular newsletter	5 Teacher repeats external course	6 Courses by an external agency	7 Via in-school courses	8 Via computer co-ordinator	9 No organised structure	10 Transfer ICT knowledge, other
Belgium (Fr.)[1]	75	15	7	4	60	21	28	56	23	3
Canada[1]	90	45	16	12	36	32	44	65	22	6
Czech Republic	85	6	11	0	17	10	32	35	17	2
Denmark	92	23	5	14	33	50	63	78	50	n
Finland[1]	67	7	3	2	19	33	45	72	14	9
France	86	7	7	1	12	11	18	43	44	6
Hungary	30	21	7	14	25	17	25	29	36	13
Iceland	85	3	6	2	9	33	30	79	45	13
Italy[1]	74	32	13	5	29	45	72	44	18	4
Japan	72	18	8	3	14	41	38	41	18	2
Luxembourg	89	6	n	n	24	52	43	74	52	4
New Zealand[1]	90	61	13	12	31	38	61	74	20	1
Norway	87	16	4	1	16	38	61	73	22	6

Note. All statistics are based on schools using computers.

1. Country did not satisfy all sampling criteria.

Source. International Association for the Evaluation of Educational Achievement (IEA)/SITES.

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INDIVIDUAL, SOCIAL AND LABOUR MARKET OUTCOMES OF EDUCATION

Education and work are intimately connected, with education having two obvious effects on economic productivity. First, education can contribute to the development of knowledge, which translates into technological improvements and aggregate productivity gains. Secondly, education can increase the skills and knowledge of individual workers, allowing them to accomplish particular tasks better and to adapt more easily to changing job requirements. In a free labour market, the success of an education system manifests itself among other things through the success of the individual in finding and holding a job, as well as in the level of wages that employers are willing to pay for the skills which the individual has. The adequacy of workers' skills and the capacity of the labour market to supply jobs that match those skills are important issues for policy-makers.

Indicator E1 examines the relationship between educational attainment and labour-force activity, examining rates of participation in the labour force first, and then rates of unemployment.

The transition from school to work is a critical period for young people – when the knowledge and skills learned in formal education come up against the skill requirements of the labour market. The extent to which learning at school or university translates into workplace skills and performance, and the work habits acquired at this stage, have a considerable effect on social integration and future labour-force activity and earnings.

Young people represent the principal source of new skills in our societies. In most OECD countries, education policy seeks to encourage young people to complete at least secondary education. Since jobs on offer in the labour market require ever higher levels of skill, persons with low attainment are often severely penalised in the labour market. Despite progress in attainment levels, many young people are subject to unemployment. Differences in unemployment rates by level of educational attainment are an indicator of the degree to which further education improves young people's economic opportunities.

The youth unemployment rate by age group is the most common measure available for describing the problems of transition between school and work. However, it gives only a partial view of the situation. Introducing an indicator showing youth unemployment as a proportion of the population as a whole, and confining it to young people who are not in education, is a way of defining the most significant population for the purposes of education policy and youth employment policy.

Indicator E2 reveals the education and work status of young people in a number of OECD countries, in the age groups 15 to 19, 20 to 24, 25 to 29, and the overall situation for all young people aged 15 to 29. Working during education can occur in the context of work-study programmes or in the form of part-time jobs out of school hours. As young people get older, fewer remain in education, and fewer hence combine it with work. Young adulthood is generally the period when initial schooling is completed and young persons enter the labour market for the first time. In certain countries, education and work take place largely consecutively, while in other countries they may occur concurrently. The various patterns of education combined with work can have significant effects on the success of the transition process.

Indicator E3 focuses on the specific forms of young people's employment. At issue here is the kind of work available to young people leaving the education system. Part-time work is becoming more widespread, as are fixed-term contracts and temporary jobs. But labour-market regulations differ widely

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between countries. The characteristics of part-time employment for young people reflect those of adult employment to some extent. Overall, 20 to 29-year-olds who are no longer in education do not tend to hold part-time jobs. This is not true of fixed-term or temporary employment. Young people appear to be given more temporary contracts, which may be construed as an adjustment strategy or a mutual trial period for both employee and employer. While there has been a significant increase in the length of time spent in education, a significant proportion of young people are still threatened with exclusion because they are neither in education nor at work, *i.e.*, they are unemployed or in non-employment. To obtain unemployment status, they must be actively seeking work; otherwise they are considered to be in non-employment. This situation gives particular cause for concern in respect of younger age groups, many of whom have no unemployment or employment status and do not benefit from any welfare cover.

On the basis of the current situation of persons between the ages of 15 and 29, **Indicator E4** gives a picture of the major trends affecting the transition from school to work. Assuming that conditions in the education system and the labour market remain unchanged over the next 15 years, then an indication of the average number of years expected in various education and employment situations will accurately reflect the characteristics of entry to the labour market for today's population of 15-year-olds. Between 1985 and 1996, the time spent in education rose significantly. Since 1996, the overall increase has been slower. It is worth noting that, in absolute terms, young people can expect to spend less time in unemployment after completion of initial education than they could ten years ago. It is in the average duration of spells of unemployment when young people first enter the labour market that countries vary most.

One way in which markets supply incentives for workers to develop and maintain appropriate levels of skills is through wage differentials, in particular through the enhanced earnings accorded to persons completing additional education. The economic benefit of completing tertiary education can be seen by comparing the ratio of the mean annual earnings of those who attended and graduated from tertiary education with the mean annual earnings of upper secondary graduates. **Indicator E5** shows the earnings of workers of differing educational attainment relative to those of individuals with upper secondary attainment.

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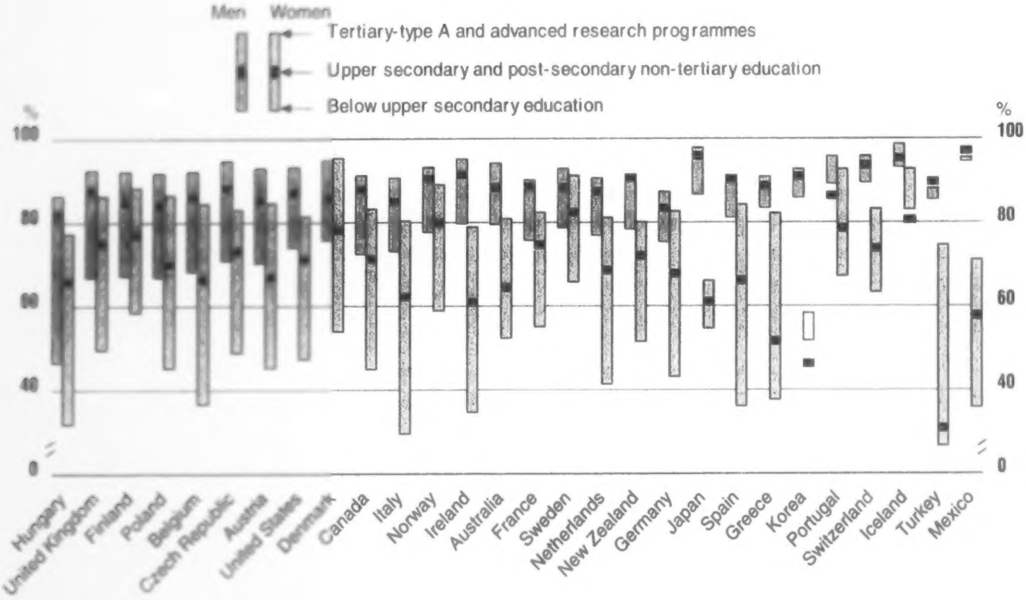
LABOUR FORCE PARTICIPATION BY LEVEL OF EDUCATIONAL ATTAINMENT

- The labour force participation rates of men rise with educational attainment in most OECD countries. With very few exceptions, the participation rate of graduates of higher education is markedly higher than that of upper secondary graduates. The gap in male participation rates is particularly wide between upper secondary graduates and those without an upper secondary qualification.
- The participation rates of women with less than upper secondary attainment are particularly low. Rates for women with tertiary attainment approach or exceed 80 per cent in all but four countries, but remain below those of men in all countries except one.
- The gender gap in labour force participation decreases with increasing educational attainment. Although a gender gap in labour force participation remains among those with the highest educational attainment, the gap is much narrower than among those with lower qualifications.

Chart E1.1. **Labour force participation rates for the population 25 to 64 years of age, by level of educational attainment and gender (1998)**



In Korea, the labour force participation rate is higher for women with less than upper secondary education than for those with tertiary-type A and advanced research programmes. This is indicated by a white bar.

Countries are ranked in descending order of the difference in labour force participation rates between men with tertiary-type A and advanced research programmes attainment and men with less than upper secondary attainment.

Source: OECD.

POLICY CONTEXT

This indicator examines the relationship between educational attainment and labour-market status.

OECD economies and labour markets are becoming increasingly dependent on a stable supply of well-educated workers to further their economic development and to maintain their competitiveness. As levels of skill tend to rise with educational attainment, the costs incurred when those with higher levels of education do not work also rise; and as populations in OECD countries age, higher participation in the labour force can lower dependency ratios and help to alleviate the burden of financing public pensions.

This indicator examines the relationship between educational attainment and labour force activity, examining rates of participation in the labour force first, and then rates of unemployment. The adequacy of workers' skills and the capacity of the labour market to supply jobs that match those skills are important issues for policy-makers.

EVIDENCE AND EXPLANATIONS

Labour force participation

Labour force participation rates of men vary less between countries than those of women.

Variation between countries in the participation of women is a primary factor in the variability in overall participation rates in OECD countries. The degree of labour force participation among women varies more between countries than that among men, with rates of 50 per cent or less in Greece, Italy, Mexico, and Turkey, and rates of over 75 per cent in the Nordic countries. By contrast, overall labour force participation rates for men aged 25-64 range from 80 per cent or less in Hungary and Italy to over 90 per cent in Iceland, Japan, Korea, Switzerland and Mexico (Table E1.1). Two factors which contribute to these disparities, and generally have a similar impact, are prolonged education and non-employment.

The labour force participation rates of men rise with educational attainment in most OECD countries.

The labour force participation rates of men are generally higher for those with higher educational qualifications. With the exception of Mexico and Turkey, where the trend is less pronounced, the participation rate of graduates of higher education is markedly higher than that of upper secondary graduates. The difference ranges from a few percentage points to between 7 and 9 per cent in Austria, Denmark, Germany, Poland and Portugal. It is very small between the ages of 35 and 44, when most people are in employment, and stems mainly from the fact that the less skilled leave the labour market earlier. After 55, the more highly skilled tend to remain in employment longer than others.

The gap in male participation rates is particularly wide between upper secondary graduates and those without an upper secondary qualification.

The gap in male participation rates is particularly wide among the age group 25 to 64 years between upper secondary graduates and those who have not completed an upper secondary qualification. In 16 out of 28 OECD countries, the difference in the rate of participation between upper secondary graduates and those without such a qualification exceeds ten percentage points. The most extreme case is Hungary, where only half of the male population without upper secondary education, but over 80 per cent with such attainment, participate in the labour force. The gap in participation rates between men with low and high educational attainment is small in Greece, Iceland, Korea, Mexico, Portugal and Turkey (where participation is generally high at all levels of educational attainment).

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By contrast, the labour force participation rates of women aged 25 to 64 years show marked differences, not only between those with below upper secondary and those with upper secondary attainment (around 20 percentage points or more in 16 out of 28 OECD countries) but also between those with upper secondary and those with tertiary attainment (around 10 percentage points or more in 20 countries), with the exception of France, Japan and Korea, where participation rates of women with upper secondary qualifications approach those of women with a tertiary degree (a difference of around 5 to 7 percentage points).

Among women, the difference in labour force participation by level of educational attainment is even wider.

The participation rates of women with less than upper secondary attainment are particularly low, averaging about 50 per cent over all OECD countries and around one-third or below in Hungary, Ireland, Italy and Turkey. Rates for women with tertiary attainment approach or exceed 80 per cent everywhere except Japan, Korea, Mexico and Turkey, but remain below those of men in all countries except Denmark.

The labour force participation of women with qualifications below upper secondary is particularly low.

Although a gender gap in labour force participation remains among those with the highest educational attainment, the gap is much narrower than among those with lower qualifications. On average across OECD countries, with each additional level attained, the difference between the participation of men and women decreases by 10 percentage points: from about 30 percentage points at below upper secondary level, to 20 at upper secondary and 10 at the tertiary level.

The gender gap in labour force participation decreases with increasing educational attainment.

Much of the gap between the labour force participation rates of men with differing educational attainment is driven by differences in the older populations, particularly men between the ages of 55 and 64 (Table and Chart E1.2), although more than 70 per cent of 55-64 year-olds with a tertiary-level qualification are active in the labour force in 17 out of 28 countries. Only Greece, Korea, Mexico and Turkey have participation rates as high among those who have not completed upper secondary education. By contrast, the education gap in female labour force participation is relatively wide in all age groups.

The education gap in male participation in the labour force is strongly influenced by differences among the older population.

The patterns observed here reflect a number of underlying causes. Since earnings tend to increase with educational attainment, the monetary incentive to participate is greater for individuals with higher qualifications. In addition, these individuals generally work on more interesting and stimulating tasks, and hold functions of higher responsibility, which increases their motivation to remain in the labour force. Conversely, hard physical work, generally associated with rather low levels of education can lead to a need for early retirement. Moreover, industrial restructuring in many countries has reduced job opportunities for unskilled workers, a sizeable number of whom have left the labour market either through early retirement schemes or because there are only limited job opportunities. The educational attainment of women and their participation rates in the labour market have historically been lower than those of men, and in spite of considerable advances over the last few decades, current participation rates continue to show the impact of these historical factors.

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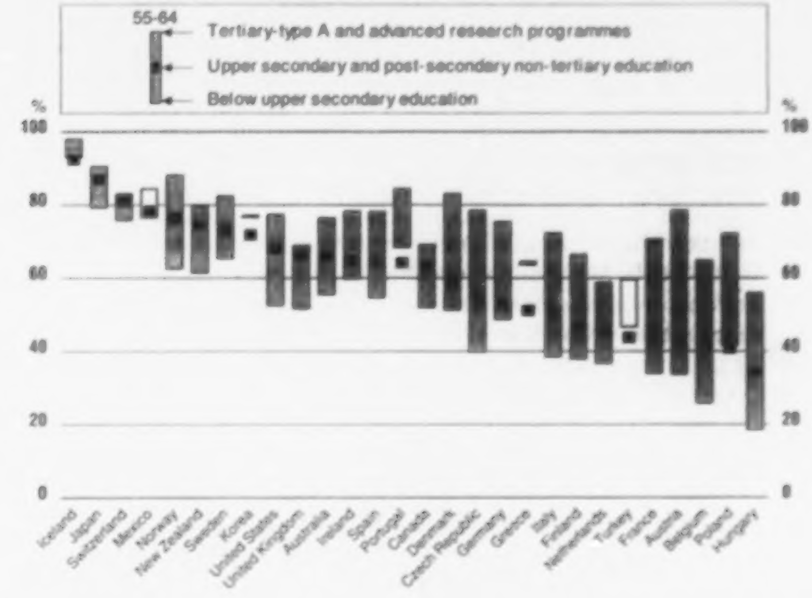
Much of the gap between the labour-force participation rates of men is due to differing educational attainment rates in the older population, particularly men between the ages of 55 and 64.

Chart E1.2. **Labour force participation rates of men, by highest level of educational attainment for the population 55 to 64 years of age (1998)**



In Mexico and Turkey, the labour force participation rate for 55-64 year-olds is higher for individuals with less than upper secondary than for those with tertiary-type A and advanced research programmes. This is indicated by white bars.

Countries are ranked in descending order of the labour force participation rate for 55-64 year-olds with upper secondary and post-secondary non-tertiary education attainment.

Source: OECD.

Unemployment rates by level of educational attainment

Those with low educational attainment are both less likely to be labour force participants and more likely to be unemployed.

The unemployment rate is a measure of a particular economy's ability to supply a job to everyone who wants one. To the extent that educational attainment is assumed to be an indicator of skill, it can signal to employers the potential knowledge, capacities and workplace performance of candidates for employment. The employment prospects of individuals of varying educational attainment will depend both on the requirements of labour markets and on the supply of workers with differing skills. Those with low educational qualifications are at particular risk of economic marginalisation since they are both less likely to be labour force participants and more likely to be without a job if they are actively seeking one.

Unemployment rates fall with higher educational attainment.

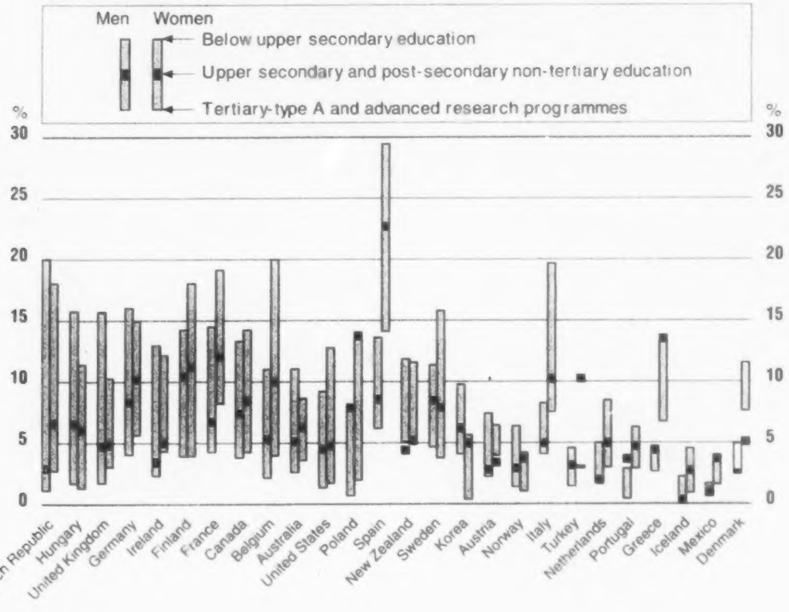
In 15 out of 27 OECD countries, male labour force participants aged 25-64 with a qualification below upper secondary education are more than 1.5 times as likely to be unemployed as their counterparts who have completed upper secondary education. In a similar proportion of countries, the unemployment rate for male upper secondary graduates is at least 1.5 times the unemployment rate of tertiary graduates. At the tertiary level, in 12 countries out of 21, completion of shorter occupationally oriented programmes (ISCED 5B) is associated with unemployment rates for the adult population which are at least 20 per cent higher than those of graduates of more theoretical and longer programmes at ISCED level 5A (Table E1.3). In most countries, the disparities in unemployment rates between levels of educational attainment are particularly strong for men between 30 and 44 years of age.

The association between unemployment rates and educational attainment is similar for women, although the gap between upper secondary and tertiary attainment is even wider in many countries (Chart E1.3).

A number of factors contribute to the variation between countries in the association between unemployment rates and educational attainment.

The wide variation between countries in unemployment rates observed among those with low educational attainment is attributable to a number of factors. In some countries (especially Finland and Spain), the high unemployment rates of the poorly educated reflect generally difficult labour-market conditions that affect these individuals in particular. Unemployment rates among those without an upper secondary qualification are also relatively high in some countries where labour markets are less regulated (Canada, the United Kingdom and the United States), although not in others (Australia and

Chart E1.3. **Unemployment rates of the population 30 to 44 years of age, by highest level of educational attainment and gender (1998)**



In most countries, the disparity in unemployment rates across the levels of educational attainment is particularly strong for men between 30 and 44 years of age.

In Denmark, the unemployment rate is higher for individuals with tertiary-type A and advanced research programmes than for those with less than upper secondary education. This is indicated by a white bar.

Countries are ranked in descending order of the difference in unemployment rates between men with less than upper secondary attainment and men with tertiary-type A and advanced research programmes attainment.

Source: OECD.

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New Zealand). On the other hand, in countries where agriculture is still an important sector of employment (Greece, Korea, Portugal and Turkey), unemployment rates of persons without upper secondary education tend to be low. Finally, where overall labour-market conditions are particularly favourable (Austria and Norway), jobs appear to be available for workers with low as well as high educational attainment (Table E1.2).

Youth unemployment by level of educational attainment

Young people represent the principal source of new skills in our societies. In most OECD countries, education policy seeks to encourage young people to complete at least secondary education. Since jobs on offer in the labour market require ever higher skill levels, persons with low attainment are often severely penalised in the labour market. Despite progress in attainment levels, many young people are subject to unemployment. Differences in unemployment to population ratios by level of educational attainment are an indicator of the degree to which further education improves the economic opportunities of any young man or woman.

Unemployment rates for persons with less than secondary attainment are very high in a number of countries and, although falling with age, tend to persist at relatively high levels.

In OECD countries, the unemployment rate of 20 to 24-year-olds with less than upper secondary attainment was on average 19 per cent in 1998. It was about 10 per cent or less in Austria, Denmark, Iceland, Mexico, the Netherlands, Portugal and Turkey and about 30 per cent or more in Belgium, Finland, France, Italy and Spain. Unemployment among persons 25 to 29 years of age who have not completed secondary education is a persistent phenomenon; it was still about 15 per cent on average in 1998, and reached around 25 per cent or more in the Czech Republic, France and Spain.

In most countries, unemployment rates decline with increasing age and educational attainment. Tertiary graduates 25 to 29 years of age have favourable employment prospects, with unemployment rates of less than 7 per cent in 17 out of 26 OECD countries. Rates nevertheless remain high in a small group of countries, exceeding 10 per cent in France and Turkey, and 20 per cent in Greece, Italy and Spain. It is in these same countries that unemployment differences between men and women are the greatest, women having higher rates in all cases (Table E1.3*a*).

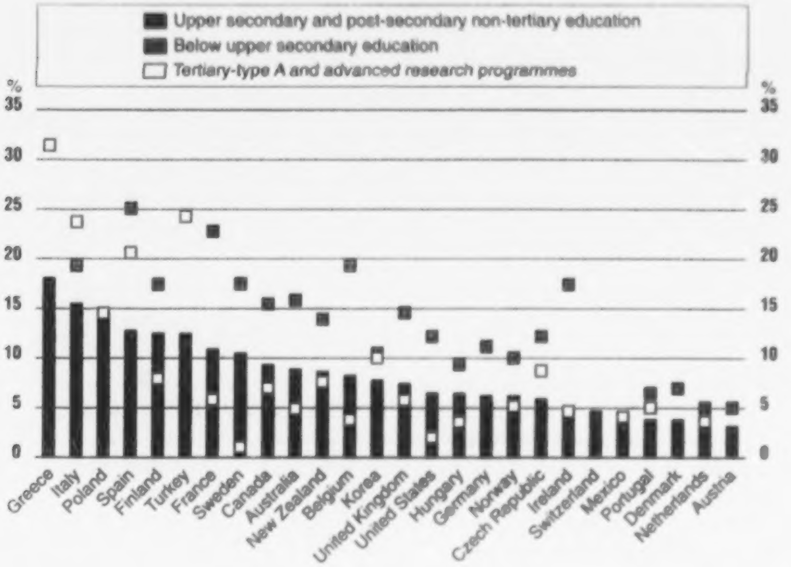
High unemployment rates among 25 to 29-year-olds are related to the general state of the labour market.

In general, the unemployment rate of 25 to 29-year-olds, in particular for those with less than tertiary attainment, is closely related to the general state of the labour market. In countries with high unemployment rates among workers of prime age, rates for 25 to 29-year-olds with secondary attainment are also high.

For those without upper secondary education, unemployment to population ratios are on average one and a half times higher than among upper secondary graduates.

Upper secondary completion reduces, on average, the unemployment to population ratio (that is, unemployment as a percentage of the entire age cohort) of 20 to 24-year-olds by about 5 percentage points, and that of 25 to 29-year-olds by about 4 points (Chart E1.4). In 18 out of 26 countries, the unemployment to population ratio among young people aged 20-24 years is less than 10 per cent if they have completed upper secondary or post-secondary non-tertiary education. In only eight countries does this proportion remain below 10 per cent among those without upper secondary attainment. Since upper secondary completion has become the norm in most OECD countries, many young persons who do not complete this level can expect to have employment problems throughout their working lives (Table E1.3*b*).

Chart E1.4. **Unemployment to population ratio for 20-24 year-olds by level of educational attainment (1998)**



Countries are ranked in descending order of unemployment/population ratio for persons with upper secondary and post-secondary non-tertiary attainment.

Source: OECD.

To the extent that the upper secondary completion has become the norm in most OECD countries, many young persons who do not complete this level can expect to have employment problems throughout their working lives.

In a number of countries, young people in the age group 20-24 face unemployment to population ratios above 10 per cent even if they have completed upper secondary education. In a few countries, even those who have completed tertiary-level education, probably a first degree in view of the age band involved, are subject to considerable unemployment when they enter the labour market. The unemployment to population ratio among this group is more than 20 per cent in Greece, Italy, Spain and Turkey.

Upper secondary education, or even tertiary-level education, does not guarantee a job in some countries.

Unemployment rate and ratio of unemployed non-students among the youth population

The youth unemployment rate by age group is the most common measure available for describing the problems of transition between school and work. However, it gives only a partial view of the situation. Because of disparities in the length of time which young people spend in education, the same rate may concern very different sections of the youth population. When almost all of the young people in a particular age group are still in education, the unemployment rate relates only to the few who are on the labour market. The figure may look very high, particularly for the youngest who have usually left the education system with very few qualifications, whereas in reality only a small proportion of the age group are actually unemployed. Introducing an indicator showing youth unemployment as a proportion of the young people who are not in education, is a way of focusing on the most relevant population for the purposes of education policy and youth employment policy. This is because young people who are looking for a job while still in education do not have the same attitude

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to the labour market as those entering the labour market after leaving the education system. They are usually seeking part-time or temporary employment that will fit in with their studies.

The choice of the indicator has a noticeable effect on the resulting table.

Table E1.4 shows that differences in statistical approach have significant implications as far as very young people are concerned. At ages from 15 to 19, the unemployment rate concerns only those who have left the education system early, hence the least skilled. Recorded at a time when the most disadvantaged young people are seeking to enter a labour market that is particularly inaccessible to them, unemployment rates are steep, averaging over 20 per cent and in some cases as much as 30 or 40 per cent. But the picture is particularly deceptive if confined to the youngest school-leavers, rather than the age group as a whole. If all 15 to 19 year-olds are considered, youth unemployment amounts to only a few percentage points, 3.5 per cent on average, meaning that the problem is on quite a different scale.

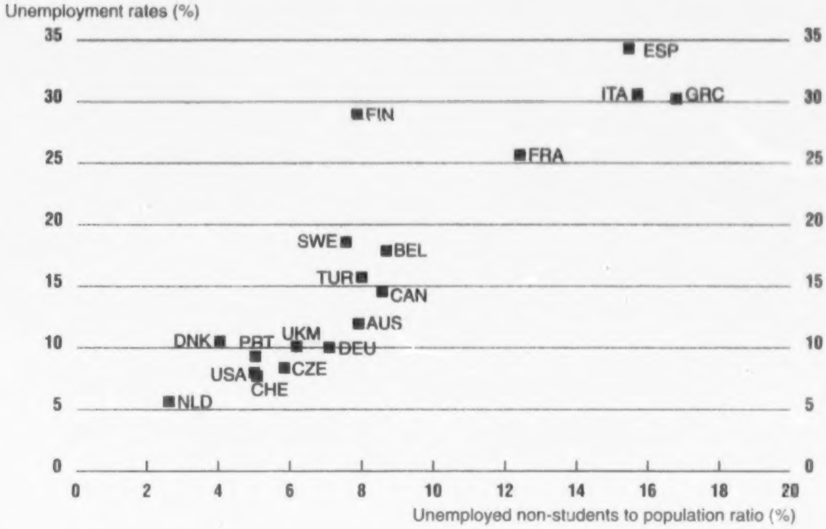
The younger the age group considered, and the higher the average number of years young people spend in the education system in a specific country, the greater is the difference between the two indicators.

During the most common period for entering the labour market, *i.e.* after the age of 20, unemployment rates for young workers and for the youth population as a whole are still at very different levels. Unemployment rates for those aged 20-24 differ very widely from country to country. At the low end of the scale, they range from 5 to less than 10 per cent (the Czech Republic, Korea, the Netherlands, Portugal, Switzerland and the United States) but are as high as around 30 per cent or more in Finland, Greece, Italy and Spain. In these latter countries, the labour market is particularly hard for young people to enter. Given the high average age of young people when they complete their initial education, those in the labour market at the age of 20 to 24 have either left school very early and belong to the least skilled, or spent little time in the labour market so far. This relative disadvantage is particularly strong in countries such as Finland, where the average school-leaving age is even higher than the OECD average and where almost half of the age group are still in education (see Tables E4.1 and E2.1, discussed in later sections).

Taking the unemployed – who are no longer in education – as a proportion of the age group as a whole, the picture appears to be far less serious, and the differences between countries become less clear. Because of its high proportion of students, Finland returns to a moderate rate, even below the OECD average, so that on the whole the employment situation of the 20 to 24-year olds does not seem to be particularly worrying. Otherwise, there is little change in country rankings, although the gaps have narrowed. In most countries, youth unemployment stands no higher than between 5 and 9 per cent of the age group (*i.e.*, the unemployment to population ratio). The highest national figures stand at around 16 per cent. Chart E1.5 shows that one group of countries consistently appears to be present young entrants to the labour market with particular difficulties, whatever the indicator used and the age group considered. This group includes France, Greece, Italy and Spain.

Another effect revealed by the use of the new indicator relates to gender. Among 15-29 year-olds, in 12 out of 19 countries, more women are unemployed than men. In many cases, the difference is substantial, particularly when unemployment is generally very high. Yet this is not true of the proportion of unemployed women within the total age group. This indicator demonstrates that unemployed young women account for a higher proportion of the total age group than unemployed young men in only half of the 18 countries reporting

Chart E1.5. **Youth unemployment rate and ratio of unemployed non-students to the total population for 20-24 year-olds (1998)**



Source: OECD.

Certain countries (particularly France, Greece, Italy and Spain) appear to be in a difficult situation regarding young entrants to the labour market.

data, and that the difference between female and male unemployment is less marked. The proportion of women is often smaller either because they remain in education longer, or because they leave the labour market more or less voluntarily.

After the age of 25, the proportion of young people in work predominates. The gap between the unemployment rate and the proportion of unemployed persons in the age group tends to narrow, although levels differ between countries, particularly when people stay in the education system longer and non-employment is common. Quite a large group of countries have unemployment rates of under 10 per cent, as young people are in a stable situation in the labour market, on average five to six years after leaving the education system. In those countries already mentioned in connection with the 20-24 age group (both Mediterranean and some Nordic countries), young people still find it hard to gain access to the labour market and suffer unemployment rates of over 15 per cent. However, if we look at the unemployed as a proportion of the age group as a whole, the picture changes a little. While Greece, Italy and Spain still display a very high proportion of unemployment, Denmark, Finland and Sweden resemble many other countries and show rates of around 8 per cent. France lies between the two groups.

DEFINITIONS

The labour force participation rate for a particular age group is equal to the percentage of individuals in the population of the same age group who are either employed or unemployed, where these terms are defined according to the guidelines of the International Labour Office (ILO).

Data are derived from national labour force surveys.

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The unemployed are defined as individuals who are without work, actively seeking employment and currently available to start work. The employed are defined as those who during the survey reference week: *i)* work for pay (employees) or profit (self-employed and unpaid family workers) for at least one hour, or *ii)* have a job but are temporarily not at work (through injury, illness, holiday or vacation, strike or lock-out, educational or training leave, maternity or parental leave, etc.) and have a formal attachment to their job.

The unemployment rate is the number of unemployed persons divided by the number of labour force participants (times 100). The level of educational attainment is based on the definitions of ISCED-97.

In Table E1.4, the unemployment rates and the non-students to population ratios are calculated from labour force survey data on age-specific proportions of young people in each of the specified categories. The definitions of the various labour force statuses are based on the ILO guidelines. The data for this indicator were calculated from the special collection for indicator E2, so that some results may differ slightly from those in Table E1.3*a*.

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Table E1.1. Labour force participation rates by level of educational attainment and gender for populations 25 to 64 and 55 to 64 years of age (1998)

		Ages 25-64					Ages 55-64				
		Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary-type B	Tertiary-type A and advanced research programmes	All levels of education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary-type B	Tertiary-type A and advanced research programmes	All levels of education
		ISCED 0/1/2	ISCED 3 (A/B/C)/4	ISCED 5B	ISCED 5A/6		ISCED 0/1/2	ISCED 3 (A/B/C)/4	ISCED 5B	ISCED 5A/6	
OECD countries											
Australia	Men	81	89	92	94	87	56	66	73	76	63
	Women	55	66	78	82	64	27	34	54	62	33
Austria[1]	Men	72	86	89	93	84	34	43	61	78	43
	Women	48	68	81	85	63	15	19	31	39	18
Belgium	Men	70	87	91	92	81	26	42	39	65	34
	Women	40	68	81	85	59	10	19	23	40	14
Canada	Men	74	88	94	92	87	52	61	69	69	60
	Women	47	73	82	84	71	27	44	52	51	39
Czech Republic	Men	72	89	a	95	88	40	54	a	78	55
	Women	51	74	a	84	71	13	27	a	63	24
Denmark	Men	77	86	92	95	86	51	59	80	83	61
	Women	56	79	87	96	76	28	52	56	87	44
Finland[1]	Men	69	86	88	92	81	38	46	55	66	44
	Women	60	78	85	89	75	33	44	53	70	40
France	Men	77	89	93	91	85	34	43	55	71	41
	Women	57	76	83	83	69	27	35	41	64	31
Germany	Men	77	84	93	88	85	49	53	63	75	56
	Women	46	69	81	83	66	25	38	51	62	35
Greece[1]	Men	84	89	88	91	87	64	51	37	64	61
	Women	40	54	79	83	50	27	13	14	38	25
Hungary	Men	49	83	a	87	73	19	34	a	56	27
	Women	35	67	a	78	55	6	15	a	31	10
Iceland	Men	94	96	100	99	96	93	92	m	98	93
	Women	84	82	91	93	85	80	87	m	m	83
Ireland[2]	Men	81	92	93	95	87	60	65	76	78	63
	Women	38	63	81	80	55	19	30	54	52	25
Italy	Men	74	86	x(5A/6)	91	80	39	50	x(5A/6)	72	43
	Women	33	64	x(5A/6)	81	47	12	27	x(5A/6)	43	15
Japan	Men	87	96	98	98	95	79	87	94	90	85
	Women	57	63	62	68	62	48	48	42	43	48
Korea	Men	87	91	96	93	91	77	72	84	77	75
	Women	60	49	58	54	55	50	29	55	45	48
Mexico[1, 3]	Men	95	97	99	96	95	84	78	86	77	84
	Women	39	60	55	72	44	29	38	50	44	30
Netherlands[4]	Men	78	88	x(5A/6)	91	86	37	45	x(5A/6)	59	45
	Women	44	70	x(5A/6)	82	62	14	26	x(5A/6)	39	20
New Zealand	Men	79	91	91	92	88	62	74	79	80	71
	Women	54	73	76	81	69	34	57	59	62	47
Norway[1]	Men	79	91	96	93	90	63	76	75	88	75
	Women	61	81	93	90	80	46	66	80	84	60
Poland	Men	69	85	x(5A/6)	92	82	42	41	x(5A/6)	72	45
	Women	48	71	x(5A/6)	87	68	23	24	x(5A/6)	49	26
Portugal	Men	90	87	89	96	90	68	64	54	84	69
	Women	69	80	83	93	72	42	29	35	64	42
Spain	Men	82	91	95	92	86	55	65	68	78	58
	Women	39	68	78	85	51	19	36	33	61	21
Sweden[4]	Men	80	89	88	93	87	66	73	79	82	72
	Women	67	83	86	92	81	53	67	74	81	64
Switzerland	Men	90	94	97	96	94	76	81	89	83	82
	Women	65	75	85	84	74	46	54	80	68	52
Turkey	Men	86	90	x(5A/6)	89	87	60	44	x(5A/6)	47	58
	Women	27	34	x(5A/6)	76	30	26	5	x(5A/6)	26	26
United Kingdom	Men	68	88	91	93	86	52	66	67	69	63
	Women	52	76	85	87	73	43	63	64	63	55
United States	Men	75	88	92	94	88	53	68	72	77	68
	Women	50	73	82	82	73	36	54	64	65	53
Country mean	**Men**	**78**	**89**	**93**	**93**	**87**	**54**	**61**	**69**	**75**	**60**
	Women	**51**	**69**	**80**	**83**	**64**	**31**	**39**	**51**	**55**	**37**
WEI participants[1, 5]											
Argentina	Men	94	93	95	97	m	m	m	m	m	m
	Women	50	61	84	90	m	m	m	m	m	m
Brazil	Men	87	88	91	93	m	m	m	m	m	m
	Women	51	64	81	85	m	m	m	m	m	m
Chile	Men	95	94	95	94	m	m	m	m	m	m
	Women	37	54	71	80	m	m	m	m	m	m
Indonesia	Men	96	94	x(5A/6)	97	m	m	m	m	m	m
	Women	41	54	x(5A/6)	85	m	m	m	m	m	m
Malaysia	Men	97	97	x(5A/6)	95	m	m	m	m	m	m
	Women	41	59	x(5A/6)	84	m	m	m	m	m	m
Paraguay	Men	99	97	100	97	m	m	m	m	m	m
	Women	64	74	86	84	m	m	m	m	m	m
Philippines	Men	90	85	a	83	m	m	m	m	m	m
	Women	51	48	a	47	m	m	m	m	m	m
Uruguay	Men	95	94	x(5A/6)	96	m	m	m	m	m	m
	Women	69	77	x(5A/6)	87	m	m	m	m	m	m

1. Year of reference 1997.
2. ISCED 5B includes some ISCED 4.
3. ISCED 2 includes some 3A.
4. ISCED 4 is included in ISCED 5B.
5. ISCED 0/1/2 includes only ISCED 2 for WEI participants.

Source: OECD Database. See Annex 3 for notes.

E1

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Table E1.2. Unemployment rates by level of educational attainment and gender for populations 25 to 64 and 30 to 44 years of age (1998)

		Ages 25-64					Ages 30-44				
		Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary-type B	Tertiary-type A and advanced research programmes	All levels of education	Below upper secondary education	Upper secondary and post-secondary non-tertiary education	Tertiary-type B	Tertiary-type A and advanced research programmes	All levels of education
		ISCED 0/1/2	ISCED 3 (A/B/C)/4	ISCED 5B	ISCED 5A/6		ISCED 0/1/2	ISCED 3 (A/B/C)/4	ISCED 5B	ISCED 5A/6	
OECD countries											
Australia	Men	10.4	5.8	3.5	2.8	6.6	11.0	5.2	3.2	2.6	6.4
	Women	7.5	5.9	4.7	3.0	5.8	8.7	6.3	5.0	3.6	6.6
Austria [1]	Men	7.0	3.3	2.5	2.2	3.8	7.4	2.8	2.2	2.3	3.4
	Women	6.5	3.6	2.5	3.3	4.2	6.4	3.4	2.1	4.0	4.1
Belgium	Men	10.5	5.0	2.5	2.7	6.4	10.8	4.3	1.9	2.2	6.0
	Women	17.6	10.9	3.5	4.5	10.3	19.7	10.3	3.4	3.8	10.5
Canada	Men	11.9	7.8	7.1	3.9	7.6	13.3	7.4	6.5	3.8	7.4
	Women	12.3	8.2	6.7	4.1	7.6	14.3	8.5	6.2	4.3	7.7
Czech Republic	Men	15.4	3.2	a	1.7	3.9	20.0	3.0	a	1.1	3.9
	Women	14.0	6.4	a	2.3	3.1	18.1	6.6	a	2.8	7.7
Denmark	Men	4.2	3.3	2.6	3.9	3.4	2.8	2.8	1.8	4.9	2.8
	Women	9.6	6.3	2.8	7.4	6.0	11.6	5.1	2.6	7.6	5.7
Finland [1]	Men	14.5	11.8	7.4	4.6	10.7	14.3	10.5	6.3	3.9	9.6
	Women	17.0	12.2	8.6	4.5	11.5	18.1	11.2	8.6	4.0	10.5
France	Men	13.5	7.7	6.5	5.3	9.2	14.5	6.7	5.4	4.3	8.7
	Women	16.5	12.2	6.9	8.0	12.5	19.1	12.0	5.8	8.2	12.9
Germany	Men	17.6	9.7	5.2	4.8	9.2	16.0	8.4	3.1	4.1	7.7
	Women	14.7	11.1	8.0	5.9	10.7	15.0	10.2	6.2	5.7	9.7
Greece [1]	Men	4.5	5.8	6.8	4.6	5.0	4.7	4.4	4.0	2.7	4.2
	Women	10.1	15.1	11.2	9.9	11.7	13.3	13.5	6.6	6.7	11.7
Hungary	Men	12.9	6.5	a	2.0	7.2	15.8	6.6	a	1.7	7.6
	Women	9.9	5.8	a	1.5	6.0	11.4	6.0	a	1.3	6.4
Iceland	Men	2.7	0.8	1.4	0.7	1.4	2.2	0.3	m	0.4	0.8
	Women	3.9	2.3	0.6	1.0	2.7	4.5	2.7	m	0.9	2.9
Ireland [2]	Men	11.7	4.2	2.5	2.9	7.4	13.0	3.5	2.1	2.3	7.3
	Women	11.4	4.8	3.0	3.9	6.5	12.2	5.0	2.4	4.3	6.5
Italy	Men	8.2	6.4	x(5A/6)	4.8	7.1	8.2	5.0	x(5A/6)	4.1	6.4
	Women	16.4	11.7	x(5A/6)	9.5	13.3	19.7	10.2	x(5A/6)	7.6	13.1
Japan	Men	5.2	3.4	2.4	2.1	3.3	m	m	m	m	m
	Women	3.0	3.1	3.6	3.1	3.2	m	m	m	m	m
Korea	Men	8.2	7.4	6.9	4.7	6.9	9.8	6.2	5.8	4.1	6.2
	Women	4.0	5.4	6.2	2.7	4.5	5.7	5.0	8.8	0.4	4.9
Mexico [1] [3]	Men	1.7	2.0	2.1	2.4	1.8	1.7	0.9	0.2	1.4	1.6
	Women	3.3	4.6	1.9	2.6	3.4	3.8	3.7	2.8	1.6	3.4
Netherlands [4]	Men	4.6	2.1	x(5A/6)	1.9	2.8	5.0	2.0	x(5A/6)	1.9	2.6
	Women	7.7	4.2	x(5A/6)	2.7	4.8	8.5	5.0	x(5A/6)	3.0	5.1
New Zealand	Men	10.8	4.4	5.1	4.0	5.8	11.8	4.4	5.5	5.1	6.2
	Women	9.9	5.1	4.0	4.4	5.9	11.6	5.2	4.1	5.2	6.3
Norway [1]	Men	4.2	2.9	1.7	1.8	2.8	6.4	2.9	1.8	1.4	3.1
	Women	3.8	3.4	1.6	1.6	2.9	4.2	3.7	2.2	1.0	3.2
Poland	Men	12.7	7.2	x(5A/6)	2.2	7.5	8.1	7.9	x(5A/6)	0.7	7.3
	Women	15.1	11.5	x(5A/6)	2.8	10.8	13.5	13.8	x(5A/6)	2.0	12.0
Portugal	Men	3.3	3.3	3.1	1.6	3.2	2.9	3.7	6.7	1.4	2.9
	Women	5.7	5.4	1.0	4.2	5.3	6.3	4.7	0.8	2.9	5.4
Spain	Men	12.6	9.9	8.4	8.6	11.3	13.6	8.6	6.3	6.2	10.9
	Women	25.6	22.7	23.9	17.0	23.0	29.5	22.7	22.9	14.2	23.8
Sweden [4]	Men	9.8	8.2	6.0	4.2	7.7	11.3	8.5	5.6	4.7	8.1
	Women	11.1	7.5	4.2	3.0	6.9	15.8	7.9	4.3	3.8	7.6
Switzerland	Men	6.2	2.9	m	m	3.0	m	2.8	m	m	2.6
	Women	5.3	2.7	m	m	3.6	m	3.1	m	m	3.7
Turkey	Men	4.6	4.6	x(5A/6)	3.7	4.5	4.6	3.2	x(5A/6)	1.5	4.1
	Women	2.5	13.6	x(5A/6)	5.7	3.9	3.0	10.3	x(5A/6)	3.1	3.9
United Kingdom	Men	13.7	5.3	3.5	2.3	5.6	15.7	4.8	3.4	1.8	5.1
	Women	7.3	4.5	1.7	3.0	4.4	10.3	4.9	1.9	3.1	4.9
United States	Men	8.0	4.6	3.2	1.7	4.1	9.2	4.5	2.7	1.3	4.0
	Women	9.3	4.2	3.0	1.9	3.8	12.8	4.8	3.4	1.8	4.4
Country mean	**Men**	**8.9**	**5.3**	**4.3**	**3.3**	**5.7**	**9.8**	**4.9**	**3.9**	**2.7**	**5.5**
	Women	**10.0**	**7.6**	**5.2**	**4.6**	**7.2**	**12.2**	**7.6**	**5.3**	**4.1**	**7.6**
WEI participants [1] [5]											
Brazil	Men	5.9	4.7	2.7	3.7	m	m	m	m	m	m
	Women	12.5	9.0	3.4	1.5	m	m	m	m	m	m
Chile	Men	4.7	4.1	5.6	2.4	m	m	m	m	m	m
	Women	3.6	5.0	7.7	2.3	m	m	m	m	m	m
Indonesia	Men	1.8	3.7	x(5A/6)	7.9	m	m	m	m	m	m
	Women	3.3	8.1	x(5A/6)	21.0	m	m	m	m	m	m
Malaysia	Men	1.1	0.8	x(5A/6)	0.4	m	m	m	m	m	m
	Women	1.3	1.0	x(5A/6)	0.7	m	m	m	m	m	m
Paraguay	Men	2.6	2.8	3.5	2.8	m	m	m	m	m	m
	Women	5.5	4.5	2.5	2.7	m	m	m	m	m	m
Philippines	Men	5.4	6.8	a	8.8	m	m	m	m	m	m
	Women	6.4	5.9	a	9.2	m	m	m	m	m	m
Uruguay	Men	5.4	5.2	x(5A/6)	1.4	m	m	m	m	m	m
	Women	12.8	8.7	x(5A/6)	2.7	m	m	m	m	m	m

1. Year of reference 1997.
2. ISCED 5B includes some ISCED 4.
3. ISCED 2 includes some 3A.
4. ISCED 4 is included in ISCED 5B.
5. ISCED 0/1/2 includes only ISCED 2 for WEI participants.

Source: OECD Database. See Annex 3 for notes.

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Table E1.3a. **Youth unemployment rates by level of educational attainment and age group (1998)**

	Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary-type B		Tertiary-type A and advanced research programmes		All levels of education		
	ISCED 0/1/2			ISCED 3 (A/B/C)/4			ISCED 5B		ISCED 5A/6				
	15-19	20-24	25-29	15-19	20-24	25-29	20-24	25-29	20-24	25-29	15-19	20-24	25-29
Australia	23.6	20.8	12.7	12.0	10.8	6.8	6.9	5.4	5.2	2.7	19.4	12.0	7.4
Austria[1]	8.4	7.6	10.9	8.8	4.3	3.2	4.1	3.8	m	4.2	8.6	4.7	4.4
Belgium	33.3	30.5	20.9	20.8	16.8	11.4	8.5	5.0	6.5	5.7	28.2	17.8	11.0
Canada	22.7	22.6	18.5	15.8	12.2	10.1	9.1	7.0	8.8	4.8	20.0	12.6	8.9
Czech Republic	31.3	22.8	26.5	23.4	8.2	6.8	a	a	10.9	3.3	25.1	9.1	7.5
Denmark	8.3	9.2	10.4	12.1	4.8	5.9	9.5	4.7	m	9.5	8.6	6.1	6.4
Finland[1]	34.5	29.1	23.5	31.8	20.7	15.4	15.9	12.2	13.5	8.5	33.6	21.3	14.8
France	23.8	37.2	26.7	26.5	22.8	15.4	14.7	10.5	18.4	11.1	24.4	25.6	16.1
Germany	6.9	16.3	20.4	7.3	8.2	7.7	m	4.8	m	4.9	7.6	9.9	8.7
Greece[1]	29.0	20.5	13.0	54.7	33.9	16.2	33.0	21.5	40.9	22.8	39.6	30.3	16.8
Hungary	39.1	17.8	18.0	20.0	10.4	7.2	a	a	4.6	2.5	26.2	11.4	8.4
Iceland	8.4	6.6	7.4	8.5	1.5	1.8	6.2	m	m	2.9	8.4	4.2	4.2
Ireland[2]	16.9	22.3	15.1	10.8	7.4	4.6	5.4	3.5	5.4	3.1	14.3	10.3	6.9
Italy	38.8	28.8	18.9	42.5	32.9	18.6	x(5A/6)	x(5A/6)	35.0	27.0	39.8	31.3	19.5
Korea	21.7	17.0	14.5	20.5	14.7	9.8	15.6	7.8	13.5	7.9	20.9	14.8	9.3
Mexico[1, 3]	6.0	5.3	3.4	20.1	6.3	6.4	6.9	3.7	8.6	4.9	6.9	5.8	4.0
Netherlands[4]	12.9	6.8	5.9	7.3	4.3	1.9	x(5A/6)	x(5A/6)	4.8	1.5	11.8	5.6	3.6
New Zealand	25.8	20.7	17.4	13.3	11.0	6.1	14.0	7.4	8.8	4.1	17.4	12.6	7.8
Norway[1]	26.0	13.2	9.1	13.1	8.0	5.0	5.9	3.1	8.7	5.3	16.0	8.6	5.6
Poland	26.8	21.5	12.6	35.3	22.3	12.6	x(5A/6)	x(5A/6)	17.0	6.5	30.9	21.9	11.8
Portugal	13.9	7.8	5.1	14.7	9.7	5.1	2.2	2.5	6.1	8.1	13.9	8.0	5.3
Spain	40.9	29.4	24.6	42.5	32.2	21.9	31.7	19.5	43.6	28.6	41.2	31.9	24.3
Sweden[4]	18.4	26.7	21.2	29.1	14.8	10.2	7.1	6.7	1.2	3.4	20.4	15.4	10.1
Switzerland	m	m	m	m	6.1	m	m	m	m	m	m	7.7	5.1
Turkey	8.5	9.2	6.4	29.4	25.5	10.5	x(5A/6)	x(5A/6)	32.5	11.3	12.2	15.5	7.8
United Kingdom	29.6	24.5	19.8	13.1	9.9	7.3	6.1	2.5	6.8	2.9	15.5	10.1	7.0
United States	18.3	17.8	12.1	9.9	8.5	6.3	1.9	3.2	2.3	1.9	15.2	8.4	5.3
Country mean	**22.1**	**18.9**	**15.2**	**20.9**	**13.6**	**9.0**	**10.8**	**7.1**	**13.8**	**7.7**	**20.2**	**13.8**	**9.2**

1. Year of reference 1997.
2. ISCED 5B includes some ISCED 4.
3. ISCED 2 includes some 3A.
4. ISCED 4 is included in ISCED 5B.

Source: OECD Database. See Annex 3 for notes.

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Table E1.3*b*. **Youth unemployment/population ratio by level of educational attainment and age group (1998)**

	Below upper secondary education			Upper secondary and post-secondary non-tertiary education			Tertiary-type B		Tertiary-type A and advanced research programmes		All levels of education		
	ISCED 0/1/2			ISCED 3 (A/B/C)/4			ISCED 5B		ISCED 5A/6				
	15-19	20-24	25-29	15-19	20-24	25-29	20-24	25-29	20-24	25-29	15-19	20-24	25-29
Australia	11.8	15.8	9.2	8.8	8.8	5.9	6.4	4.7	4.9	2.5	11.0	9.9	6.2
Austria[1]	3.1	5.0	8.0	5.7	3.2	2.8	3.1	3.3	m	3.7	3.6	3.5	3.7
Belgium	1.7	19.3	16.3	3.2	8.2	10.0	7.0	4.8	3.8	5.3	2.1	10.1	9.7
Canada	9.5	15.5	12.9	10.1	9.3	8.5	7.4	6.4	7.0	4.3	9.7	9.6	7.6
Czech Republic	2.1	12.2	17.6	14.8	5.9	5.5	a	a	8.7	2.8	5.7	6.4	6.1
Denmark	5.3	7.0	8.4	9.8	3.8	5.0	7.7	4.0	m	9.4	5.6	4.7	5.4
Finland[1]	8.0	17.4	17.6	13.7	12.5	12.2	11.8	10.3	7.9	7.4	9.4	13.1	12.0
France	1.6	22.8	20.8	4.1	10.9	13.6	6.8	9.5	5.8	8.8	1.9	12.7	13.7
Germany	2.0	11.2	14.0	4.6	6.2	6.3	m	4.5	m	4.3	2.3	7.1	7.0
Greece[1]	3.3	15.6	9.6	12.7	18.0	12.9	30.4	19.4	31.4	20.1	5.8	18.2	13.5
Hungary	2.7	9.4	10.3	7.4	6.4	5.5	a	a	3.6	2.0	4.0	6.9	6.1
Iceland	5.4	5.6	6.3	7.3	1.1	1.4	6.2	m	m	2.8	5.4	3.4	3.5
Ireland[2]	3.4	17.4	11.5	5.3	4.9	4.1	4.0	3.2	4.7	2.9	3.9	7.5	6.0
Italy	5.8	19.3	13.1	13.8	15.5	13.2			23.7	21.5	7.0	16.8	13.8
Korea	0.8	10.5	10.2	6.0	7.7	6.4	12.7	6.1	10.0	6.0	2.2	8.6	6.5
Mexico[1, 3]	2.8	3.4	2.3	9.1	4.4	4.6	4.9	2.7	4.1	4.1	3.1	3.6	2.8
Netherlands[4]	7.0	5.1	4.5	4.6	3.5	1.7	x(5A/6)	x(5A/6)	3.7	1.4	6.7	4.5	3.2
New Zealand	10.9	13.9	11.4	8.2	8.6	4.9	11.5	6.1	7.6	3.7	9.4	9.6	6.2
Norway[1]	8.7	10.0	7.6	6.7	6.2	4.3	4.2	2.8	5.2	4.5	7.3	6.3	4.7
Poland	1.8	13.6	10.2	18.2	13.8	10.3	x(5A/6)	x(5A/6)	14.5	6.0	3.7	13.8	9.8
Portugal	3.6	6.5	4.5	3.4	3.8	3.9	1.6	2.3	5.0	7.5	3.6	5.3	4.5
Spain	13.7	25.1	20.1	5.5	12.8	17.5	25.4	17.9	20.6	23.4	10.9	19.4	20.0
Sweden[4]	5.5	17.5	15.9	16.1	10.5	8.7	3.3	5.0	1.1	3.1	6.0	10.1	8.3
Switzerland	m	m	m	m	4.7	m	m	m	m	m	m	5.4	4.6
Turkey	3.1	4.9	3.7	11.2	12.5	7.7	x(5A/6)	x(5A/6)	24.3	10.4	4.6	8.2	4.9
United Kingdom	12.7	14.6	11.9	8.7	7.4	6.2	5.2	2.4	5.8	2.7	9.6	7.7	5.8
United States	8.1	12.2	8.7	6.4	6.5	5.3	1.6	2.9	2.0	1.7	7.6	6.5	4.5
Country mean	**5.6**	**12.7**	**11.0**	**8.7**	**8.0**	**7.3**	**8.5**	**6.2**	**9.3**	**6.6**	**5.8**	**8.9**	**7.4**

1. Year of reference 1997.
2. ISCED 5B includes some ISCED 4.
3. ISCED 2 includes some 3A.
4. ISCED 4 is included in ISCED 5B.

Source: OECD Database. See Annex 3 for notes.

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Table E1.4 Youth unemployment rate and ratio of unemployed non-students to the total population, by age group and gender (1998)

		Unemployment rate				Unemployed non-students to population ratio			
		Ages 15-19	Ages 20-24	Ages 25-29	Ages 15-29	Ages 15-19	Ages 20-24	Ages 25-29	Ages 15-29
Australia	Men	20.4	12.8	8.2	12.6	7.0	9.4	6.9	7.8
	Women	18.4	11.0	6.4	11.1	5.2	6.3	4.1	5.1
	M + W	19.4	12.0	7.4	11.9	6.1	7.9	5.5	6.5
Belgium	Men	24.0	15.9	9.2	12.3	2.0	8.3	7.8	6.1
	Women	35.0	20.3	13.1	16.4	1.9	9.0	10.3	7.2
	M + W	28.2	17.8	11.0	14.1	1.9	8.7	9.0	6.7
Canada	Men	23.7	16.7	11.4	15.7	4.1	10.3	9.7	8.0
	Women	18.8	12.2	8.6	12.0	2.2	6.8	6.2	5.1
	M + W	21.3	14.6	10.1	14.0	3.2	8.5	7.9	6.6
Czech Republic	Men	17.0	7.3	4.5	7.2	4.0	5.9	3.8	4.6
	Women	22.8	9.8	10.4	11.6	3.9	5.7	6.7	5.5
	M + W	19.4	8.4	6.8	9.0	4.0	5.8	5.1	5.0
Denmark[1]	Men	2.4	9.3	11.5	8.7	0.7	3.7	4.9	3.3
	Women	3.4	11.9	16.9	12.3	0.9	4.3	6.7	4.3
	M + W	2.8	10.5	14.0	10.4	0.8	4.0	5.8	3.8
Finland	Men	48.8	28.0	14.5	25.0	3.2	10.0	8.2	7.1
	Women	44.4	30.2	14.9	26.3	3.3	5.7	7.3	5.4
	M + W	46.4	29.0	14.7	25.6	3.2	7.9	7.7	6.2
France	Men	20.9	22.1	14.6	17.4	2.2	11.5	13.4	9.1
	Women	32.3	29.8	18.0	22.3	1.4	13.2	13.9	9.6
	M + W	24.3	25.7	16.1	19.6	1.8	12.4	13.7	9.3
Germany	Men	7.3	11.1	9.4	9.7	1.8	8.4	7.9	6.1
	Women	8.3	8.6	8.0	8.3	1.4	5.5	5.7	4.2
	M + W	7.7	10.0	8.8	9.0	1.6	7.1	6.8	5.2
Greece[1]	Men	27.9	21.4	12.3	17.2	3.8	13.3	11.0	9.1
	Women	52.6	39.5	22.5	32.3	6.3	19.7	14.9	13.5
	M + W	39.6	30.3	16.8	24.2	5.1	16.8	13.1	11.4
Italy	Men	34.5	27.2	16.1	22.2	6.7	15.9	12.5	12.0
	Women	46.1	34.9	23.1	29.8	6.4	15.5	14.0	12.4
	M + W	39.1	30.6	19.1	25.5	6.5	15.7	13.2	12.2
Korea[1]	Men	11.8	8.9	4.9	6.4	m	m	m	m
	Women	8.5	3.8	2.8	3.8	m	m	m	m
	M + W	9.9	5.7	4.1	5.2	m	m	m	m
Netherlands	Men	10.0	6.4	3.7	5.8	0.7	3.1	2.7	2.2
	Women	13.8	5.1	3.7	6.4	0.9	2.1	2.7	2.0
	M + W	11.8	5.6	3.6	6.1	0.8	2.6	2.7	2.1
Portugal	Men	8.4	7.8	4.9	6.6	1.9	4.7	4.0	3.5
	Women	18.4	10.9	8.2	10.6	3.5	5.3	5.8	4.9
	M + W	12.9	9.3	6.4	8.5	2.7	5.0	4.9	4.2
Spain	Men	41.2	28.2	20.1	26.0	9.4	14.5	15.2	13.3
	Women	55.6	41.8	31.2	38.3	8.0	16.4	18.3	14.6
	M + W	47.2	34.4	25.1	31.5	8.7	15.5	16.7	14.0
Sweden	Men	20.7	20.3	10.8	15.3	1.4	9.2	6.1	6.0
	Women	24.2	16.5	10.9	14.5	1.9	5.8	5.2	4.6
	M + W	22.6	18.6	10.9	14.9	1.7	7.5	5.7	5.3
Switzerland	Men	m	6.0	4.5	5.6	m	4.3	4.2	3.3
	Women	m	8.8	5.7	7.3	m	5.8	4.8	4.3
	M + W	m	7.7	5.1	6.5	m	5.1	4.5	3.8
Turkey	Men	12.5	16.7	7.3	11.7	6.1	12.3	7.0	8.1
	Women	12.3	13.9	9.5	12.1	3.3	4.5	3.0	3.6
	M + W	12.5	15.7	7.9	11.8	4.7	8.0	5.0	5.8
United Kingdom	Men	17.0	11.7	7.7	11.0	7.0	8.1	6.5	7.2
	Women	13.7	8.1	6.1	8.5	4.4	4.1	3.9	4.1
	M + W	15.5	10.1	7.0	9.9	5.7	6.2	5.2	5.7
United States[1]	Men	16.6	8.8	4.3	8.5	2.5	5.5	3.7	3.8
	Women	14.1	7.1	5.9	8.1	1.9	4.5	4.4	3.6
	M + W	15.4	8.0	5.1	8.3	2.2	5.0	4.0	3.7
Country mean	**Men**	**20.3**	**15.1**	**9.5**	**12.9**	**3.8**	**8.8**	**7.5**	**6.7**
	Women	**24.6**	**17.1**	**11.9**	**15.4**	**3.3**	**7.8**	**7.7**	**6.3**
	M + W	**22.0**	**16.0**	**10.5**	**14.0**	**3.6**	**8.3**	**7.6**	**6.5**

[1] Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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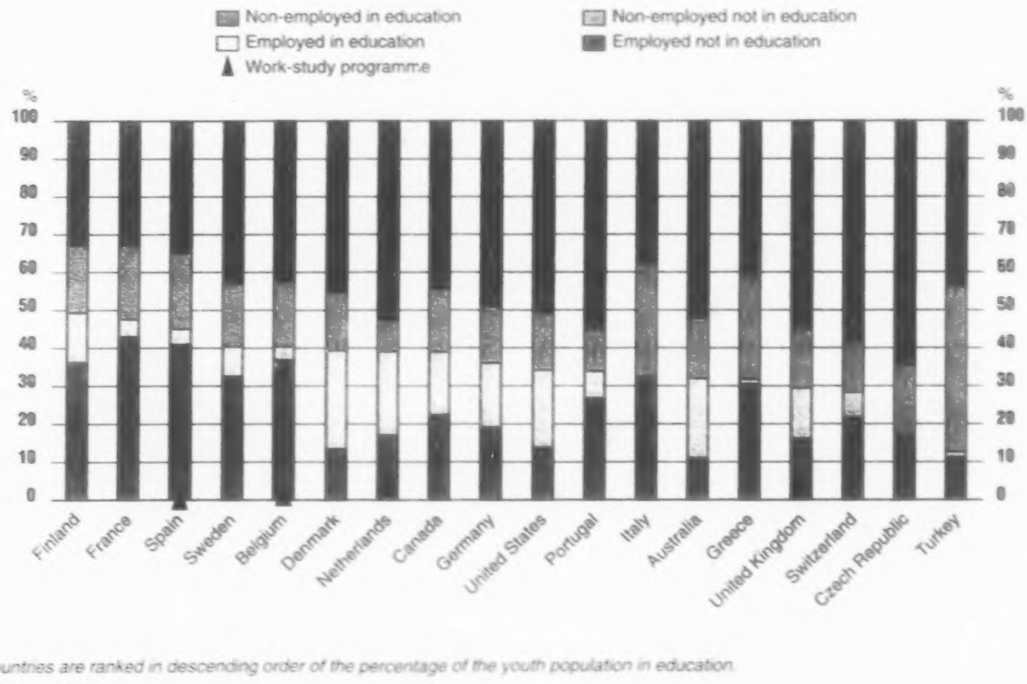
EDUCATION AND WORK AMONG THE YOUTH POPULATION

- With increasing age, the percentage of young people no longer in education rises and participation in the labour force increases. The percentage of young people not in education in most countries rises to between 50 and 70 per cent among the age group 20 to 24 years.
- In certain countries, education and work largely occur consecutively, while in other countries they may take place concurrently. Work-study programmes, relatively common in European countries, offer coherent vocational education pathways that lead to widely agreed and recognised occupational qualifications. Many young people also combine paid work out of school with education. This form of initial contact with the labour market is a major feature of transition processes in a large group of countries. In other countries, initial education and work are rarely associated.

Chart E2.1. **The education and work status of the youth population 20-24 years of age (1998)**



Countries are ranked in descending order of the percentage of the youth population in education.

Source: OECD.

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POLICY CONTEXT

All OECD Member countries are experiencing rapid social and economic changes that are making the transition to working life more uncertain. The initial exposure of young people to the world of work can take place either during education or following the completion of initial education. OECD countries vary considerably in the extent to which young persons combine work and education and tend to prolong their education. The general state of the labour market seems to have a significant influence on both these phenomena.

OECD *countries vary considerably in the extent to which young persons combine work and education and tend to prolong their education.*

EVIDENCE AND EXPLANATIONS

Young adulthood is generally the period when initial education is completed and young persons enter the labour market for the first time. In certain countries, education and work largely occur consecutively, while in other countries they may take place concurrently. The various patterns of education combined with work can have significant effects on the success of the transition process. Of particular interest, for example, is the extent to which working while in education may facilitate eventual definitive entry into the labour force. Table E2.1 reveals the education and work status of young people in a number of OECD countries, in the age groups 15 to 19, 20 to 24, 25 to 29, and the overall situation for all young people aged 15 to 29.

Combining work and education

Working during education can occur in the context of work-study programmes or in the form of part-time jobs out of school hours. Work-study programmes are relatively common in European countries such as Germany, Switzerland and, to a lesser extent, the Netherlands and the United Kingdom, offering coherent vocational education pathways that lead to widely agreed and recognised occupational qualifications. Many young people also combine paid work out of school hours with education. This form of initial contact with the labour market is a major feature of transition processes in Australia, Canada, Denmark, the Netherlands, the United Kingdom, the United States, and to a lesser extent, Austria, Finland, Germany and Sweden. Finally, countries in which initial education and work are rarely associated include Belgium, the Czech Republic, France, Greece, Italy, Spain and Turkey. As young people get older, fewer are still in education, and fewer hence combine it with work.

Work-study programmes and other ways of combining work and education are common in some countries, but rare in others.

The employment situations of men and women are broadly similar during the years of education, with the exception of Austria and Germany, where there is a greater participation of men in work-study programmes. Interestingly, in Canada, Finland, Sweden, the United Kingdom and the United States, more women than men in the age group 15 to 29 years combine work outside school hours with education (Table E2.1*a*, *b*).

During the years of education, the employment situations of men and women are broadly similar in most countries.

Entry into the labour market following the completion of initial education

The transition from education to work depends on demand for education, the state of the labour market, the length of education programmes, and the prevalence of part-time education.

With increasing age, the percentage of young people no longer in education rises, and participation in the labour force increases. The percentage of young people not in education in most countries falls within the 13 to 35 per cent range among 15 to 19-year-olds, rises to between 50 and 70 percent among the 20 to 24 age group and reaches 80 to 95 percent among 25 to 29-year-olds. However, in many OECD countries young people's transition to work begins at a later age, and in some cases it extends over a longer period. This current trend reflects not only the demand for education, but also the general state of the labour market, the length of education programmes, and the prevalence of part-time education.

The age of entry into the labour market following completion of initial education has consequences for employment. Overall, older non-students are more likely to be employed than non-students in the 15 to 19 age group, while a greater percentage of male non-students than female are working. In relative terms, more women than men are out of the labour force, particularly during the years associated with child-bearing and child-rearing, between the ages of 25 and 29 (Table E2.1*a*, *b*).

The effect of working while in education on the risk of unemployment following completion of education

Data suggest that early opportunities of combining work and education may have a positive effect on future employment.

There is an overall association across countries between a relatively high incidence of working while in education and a relatively low incidence of non-student unemployment (Chart E2.2). This reflects the fact that countries in which opportunities to combine work and education are more widely available to 15 to 19-year-olds generally have a higher proportion of their 20 to 24-year-old non-students in employment. However, this conclusion must be considered with caution, since the two age groups shown are different cohorts and the association is at the aggregate level. For example, countries such as Germany which have a strong work-study programme also boast relatively low non-student unemployment rates. The high employment rates of students and the relatively low non-student unemployment rates in Australia, Canada, the Netherlands, the United Kingdom and the United States may reflect a generally more favourable labour market for young people, regardless of whether they are still in education or have already completed it. There is also a belief that early contact with the labour market may facilitate later integration into the labour force, because of greater familiarity with job search and contacts with prospective employers. Nevertheless, in most countries, wide differences in participation by young people in education (from less than 10 to almost 50 per cent) are associated with the same rates of unemployed 20 to 24 year-olds not in education (4 to 8 per cent). One group of countries, including Greece, Italy and Spain appear to be in a specific difficult situation regarding young entrants to the labour market, more difficult than the situation of Belgium, Czech Republic, Portugal or Turkey, with the same – low – participation of students in employment.

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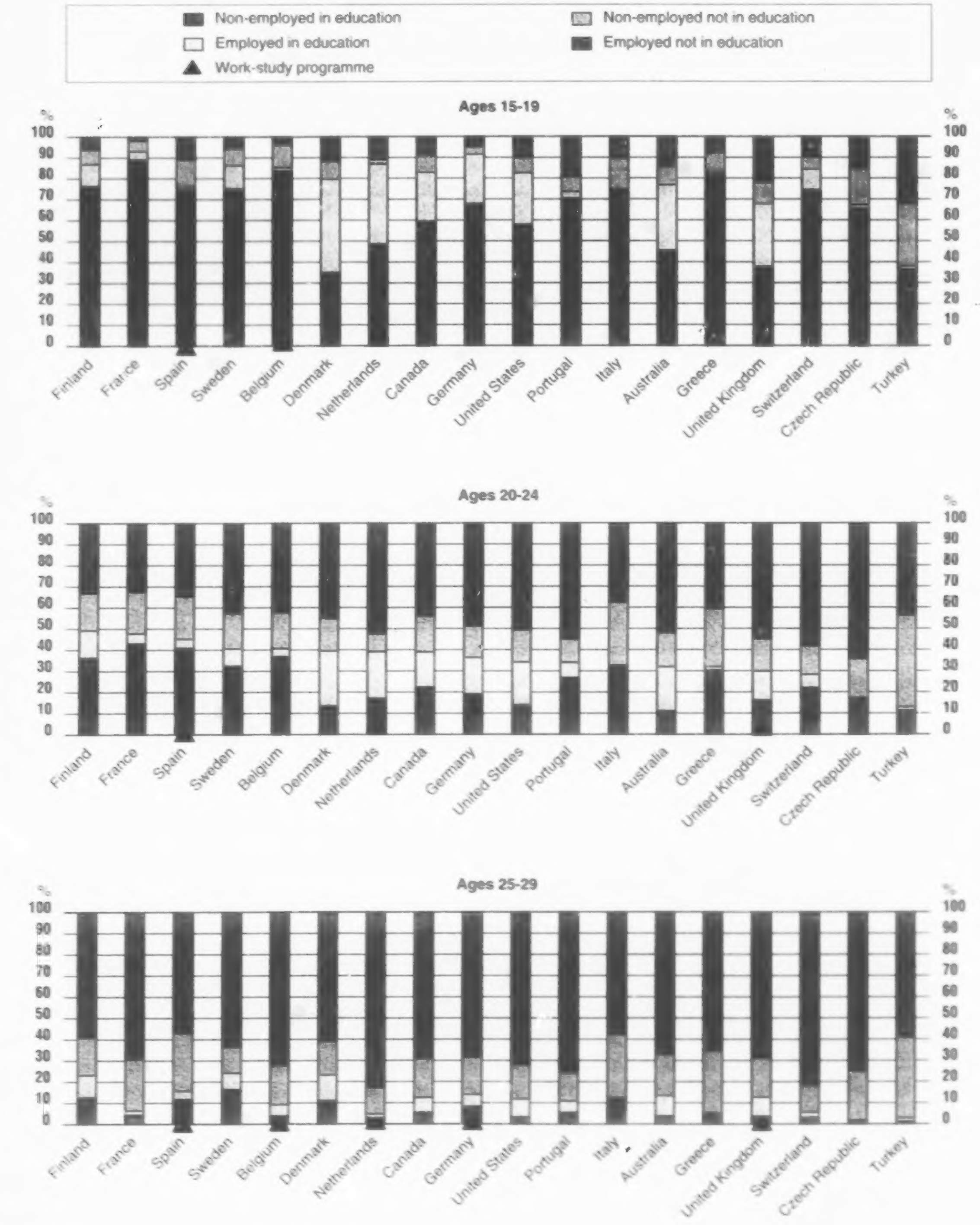
Chart E2.2. **The education and work status of the youth population, by age group (1998)**



Countries are ranked in descending order of the percentage of the youth population in education in the age group 20-24.

Source: OECD.

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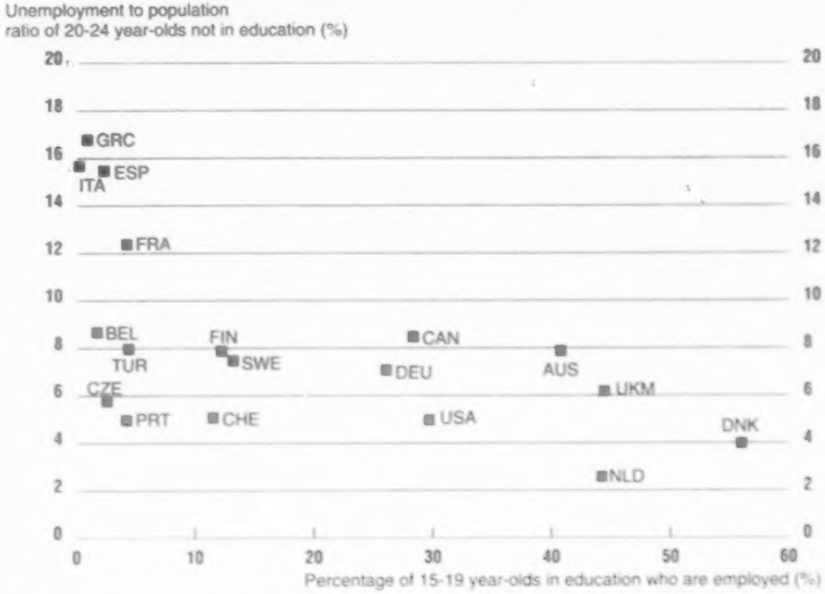
Chart E2.3. **Percentage of 15-19 year-olds in education who are employed and unemployment to population ratio of 20-24 year-olds not in education (1998)**

Certain countries (particularly Greece, Italy and Spain) appear to be in a difficult situation regarding young entrants to the labour market. The situation is less difficult in Belgium, Czech Republic, Portugal or Turkey, which have the same low participation of students in employment.



Source: OECD.

Employment to population ratios of non-students

Effective transition from education to work is more difficult for those leaving the education system relatively early, i.e. for the younger age groups of non-students, and it is less smooth for women than for men.

Employment to population ratios (*i.e.*, the employment rate as a percentage of an entire age cohort) among young adults who are not in education can capture the benefits of effective transition frameworks and assist policy-making. In most countries, fewer than 60 (and in some even fewer than 40) per cent of 15 to 19-year-olds not in education are working, which suggests that because these young people have left school early, they are not viewed by employers as having the skills necessary for productive employment (Table E2.1). Employment to population ratios for 20 to 24-year-olds generally exceed 70 per cent, but ratios in some countries such as Finland, France, Greece, Italy, Spain and Turkey are still around or below 65 per cent. For the 25 to 29 age group, most countries have ratios of between 70 and 80 per cent, with the exception of Greece, Italy, Spain and Turkey. Employment to population ratios for men tend to be higher than for women after completion of initial education, probably because of family responsibilities (Tables E2.1*a* and *b*).

DEFINITIONS

The data for this indicator were obtained from a special collection with a reference period in the early part of the calendar year, usually the first quarter or the average of the first three months; they therefore exclude summer employment. The labour force statuses shown in this section are defined in accordance with the ILO guidelines, with one exception. For the purposes of these indicators, persons in work-study programmes (see below) have been classified separately, without reference to their labour force status during the survey reference week. Such persons may not necessarily be in the work component of their programmes during the reference week, and may therefore not be employed at that time.

"Work-study programmes" are combinations of work and education in which periods of both form part of an integrated, formal education or training activity (examples are the "dual system" in Germany, "*apprentissage*" or "*formation en alternance*" in France and Belgium, internship or co-operative education in Canada, apprenticeship in Ireland, and "youth training" in the United Kingdom. Vocational education and training occur not only in school settings but also in working environments. Sometimes students or trainees are paid, sometimes not. There is a strong relationship between the job and the course or training given.

The enrolment rates shown in Table E2.1 are from labour force survey data and are essential to understanding the patterns of education combined with work described in this chapter. However, they may not agree with those generated from national administrative statistics. There are a number of reasons for this.

First, age may not be measured in the same way. For example, in administrative data, both enrolment and age are measured on January 1st in countries in the northern hemisphere, whereas in some labour force surveys, enrolment is measured in the reference week while the age recorded is the age that will be attained at the end of the calendar year, even if the survey is conducted in the early part of the year. Under these circumstances, the enrolment rates recorded may in some cases reflect a population that is almost one year younger than the specified age range. At ages when movements out of education may be significant, this can have an impact on enrolment rates.

A second source of discrepancy concerns the fact that there may be young people enrolled in more than one programme. Such persons would be counted twice in administrative statistics but only once in a labour force survey. In addition, not all enrolments may be captured in administrative statistics, particularly enrolment in profit-making institutions.

For all of these reasons (and there may be others), the enrolment rates shown cannot be directly compared with those appearing in other chapters of this publication, nor are they necessarily comparable between countries, particularly if the method of measuring age differs. The estimates given here therefore need to be treated with some caution.

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Table E2.1. Education and work status of the youth population, by age group (1998)

	Age group		In education				Not in education				Total in education and not in education
		Students in work-study programme	Employed	Unemployed	Not in the labour force	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total	
Australia	15-19	m	31.3	4.9	40.6	76.9	14.3	6.1	2.7	23.1	100
	20-24	m	20.9	2.0	9.2	32.1	51.9	7.9	8.1	67.9	100
	25-29	m	9.9	0.7	3.0	13.6	67.1	5.5	13.8	86.4	100
Belgium	15-19	1.8	1.4	0.2	83.7	85.3	3.9	1.9	8.8	14.7	100
	20-24	1.2	3.8	1.4	35.4	40.6	42.5	8.7	8.3	59.4	100
	25-29	0.4	5.6	0.7	3.1	9.3	72.4	9.0	9.2	90.7	100
Canada	15-19	m	23.5	5.7	53.8	83.0	9.4	3.2	4.3	17.0	100
	20-24	m	16.7	1.8	20.5	39.1	44.2	8.5	8.2	60.9	100
	25-29	m	7.0	0.6	4.9	12.6	69.1	7.9	10.4	87.4	100
Czech Republic	15-19	m	1.7	0.2	65.4	67.3	15.8	4.0	13.0	32.7	100
	20-24	m	0.7	0.1	16.4	17.1	64.3	5.8	12.7	82.9	100
	25-29	m	0.2	0.0	1.5	1.8	75.1	5.5	17.6	98.2	100
Denmark[1]	15-19	m	44.7	0.9	34.3	79.9	11.6	0.8	7.8	20.1	100
	20-24	m	26.1	4.3	9.2	39.6	44.9	4.0	11.5	60.4	100
	25-29	m	12.2	6.2	4.8	23.2	61.1	5.8	9.9	76.8	100
Finland	15-19	m	10.6	11.3	65.1	87.0	6.1	3.2	3.7	13.0	100
	20-24	m	13.2	11.0	25.2	49.4	33.0	7.9	9.8	50.6	100
	25-29	m	10.8	4.3	8.2	23.3	59.1	7.7	9.9	76.7	100
France	15-19	m	3.9	m	89.2	93.1	2.0	1.8	3.1	6.9	100
	20-24	m	4.9	m	42.9	47.8	32.5	12.3	7.4	52.2	100
	25-29	m	2.0	m	4.4	6.4	69.5	13.5	10.6	93.6	100
Germany	15-19	20.8	23.8	0.9	66.9	91.6	5.0	1.6	1.8	8.4	100
	20-24	12.3	17.2	0.3	18.8	36.3	48.8	7.1	7.9	63.7	100
	25-29	0.9	5.7	0.3	7.9	13.9	68.4	6.8	10.9	86.1	100
Greece[1]	15-19	a	0.7	0.7	80.8	82.3	8.1	5.1	4.6	17.7	100
	20-24	a	1.5	1.4	29.0	31.9	40.6	16.8	10.7	68.1	100
	25-29	a	1.0	0.4	3.8	5.2	65.4	13.1	16.3	94.8	100
Italy	15-19	m	0.2	0.5	74.1	74.8	10.8	6.5	7.9	25.2	100
	20-24	m	0.3	1.0	31.1	32.4	37.5	15.7	14.4	67.6	100
	25-29	m	0.2	0.5	11.4	12.1	57.8	13.2	16.8	87.9	100
Netherlands	15-19	6.6	38.5	6.0	42.6	87.1	10.8	0.8	1.3	12.9	100
	20-24	3.9	22.2	2.0	15.1	39.3	52.6	2.6	5.5	60.7	100
	25-29	1.3	1.9	0.5	2.5	4.9	83.0	2.7	9.4	95.1	100
Portugal	15-19	m	3.1	0.7	69.8	73.6	19.5	2.7	4.3	26.4	100
	20-24	m	7.1	1.3	25.6	34.0	55.0	5.0	6.0	66.0	100
	25-29	m	5.4	0.7	4.8	10.9	75.7	4.9	8.5	89.1	100
Spain	15-19	0.1	1.7	2.5	72.1	76.4	10.8	8.7	4.1	23.6	100
	20-24	0.1	4.4	5.0	35.8	45.3	34.7	15.5	4.6	54.7	100
	25-29	0.1	4.1	3.7	7.9	15.7	57.1	16.7	10.4	84.3	100
Sweden	15-19	m	11.4	3.3	71.8	86.4	5.5	1.7	6.4	13.6	100
	20-24	m	8.1	4.0	28.5	40.6	42.6	7.5	9.2	59.4	100
	25-29	m	8.0	3.0	13.3	24.3	63.5	5.7	6.5	75.7	100
Switzerland	15-19	33.2	9.7	m	74.3	84.6	10.1	m	3.6	15.4	100
	20-24	9.4	6.4	m	21.9	28.4	58.3	5.2	8.0	71.6	100
	25-29	m	2.6	m	3.0	5.6	81.7	4.6	8.1	94.4	100
Turkey	15-19	m	1.7	0.1	36.5	38.3	32.5	4.7	24.5	61.7	100
	20-24	m	1.6	0.5	10.7	12.8	43.8	8.0	35.4	87.2	100
	25-29	m	1.6	0.2	1.1	2.8	58.9	5.0	33.3	97.2	100
United Kingdom	15-19	7.6	30.2	3.8	33.9	67.8	22.0	5.7	4.4	32.2	100
	20-24	2.8	13.4	1.5	14.8	29.7	54.9	6.2	9.3	70.3	100
	25-29	0.8	9.1	0.6	3.0	12.7	69.0	5.2	13.1	87.3	100
United States[1]	15-19	m	24.5	4.1	54.0	82.6	10.3	2.2	4.9	17.4	100
	20-24	m	20.3	1.2	12.8	34.3	50.7	5.0	10.1	65.7	100
	25-29	m	8.5	0.3	3.0	11.8	72.2	4.0	11.9	88.2	100
Country mean	**15-19**	**m**	14.6	2.9	61.6	78.8	11.6	3.6	6.2	21.2	100
	20-24	**m**	10.5	2.4	22.4	35.0	46.3	8.3	10.4	65.0	100
	25-29	**m**	5.3	1.4	5.1	11.7	68.1	7.6	12.6	88.3	100

1. Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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Table E2.1*a*. **Education and work status of young men, by age group (1998)**

	Age group	In education					Not in education				Total in education and not in education
		Students in work-study programme	Employed	Unemployed	Not in the labour force	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total	
Australia	15-19	m	29.7	4.5	41.7	75.9	15.2	7.0	2.0	24.1	100
	20-24	m	21.5	1.8	9.0	32.4	55.1	9.4	3.1	67.6	100
	25-29	m	10.0	0.8	2.5	13.2	75.6	6.9	4.3	86.8	100
Belgium	15-19	2.2	2.0	0.2	82.2	84.3	4.9	2.0	8.8	15.7	100
	20-24	1.8	4.1	1.4	33.5	39.0	47.3	8.3	5.3	61.0	100
	25-29	0.5	6.0	0.8	3.5	10.2	78.1	7.8	3.9	89.8	100
Canada	15-19	m	21.7	5.8	54.1	81.6	10.3	4.1	4.1	18.4	100
	20-24	m	14.9	2.1	20.7	37.8	46.8	10.3	5.2	62.2	100
	25-29	m	6.9	0.6	4.9	12.4	72.5	9.7	5.5	87.6	100
Czech Republic	15-19	m	2.1	0.1	63.3	65.5	18.2	4.0	12.2	34.5	100
	20-24	m	0.8	0.0	16.6	17.5	74.7	5.9	2.0	82.5	100
	25-29	m	0.4	0.0	1.5	1.9	91.5	4.3	2.4	98.1	100
Denmark[1]	15-19	m	46.9	0.8	32.0	79.7	12.8	0.7	6.8	20.3	100
	20-24	m	25.6	4.0	8.4	38.0	49.6	3.7	8.7	62.0	100
	25-29	m	11.8	5.3	3.9	21.0	66.7	4.9	7.4	79.0	100
Finland	15-19	m	9.3	10.6	65.8	85.7	5.1	3.2	6.0	14.3	100
	20-24	m	11.4	9.4	19.8	40.5	38.5	10.0	11.0	59.5	100
	25-29	m	10.9	4.2	10.3	25.4	62.1	8.2	4.3	74.6	100
France	15-19	m	5.8	m	86.1	91.9	2.7	2.2	3.3	8.1	100
	20-24	m	4.8	m	41.5	46.4	36.9	11.4	5.3	53.6	100
	25-29	m	1.8	m	4.4	6.2	76.6	13.2	4.0	93.8	100
Germany	15-19	23.8	26.8	0.8	63.5	91.1	5.8	1.8	1.3	8.9	100
	20-24	11.8	16.6	0.2	17.9	34.7	52.7	8.4	4.2	65.3	100
	25-29	1.0	7.0	0.3	9.7	17.0	72.0	7.9	3.0	83.0	100
Greece[1]	15-19	a	1.0	0.5	80.7	82.3	10.3	3.8	3.6	17.7	100
	20-24	a	1.4	1.1	28.3	30.7	51.5	13.3	4.5	69.3	100
	25-29	a	1.1	0.4	4.2	5.7	80.3	11.0	2.9	94.3	100
Italy	15-19	m	0.2	0.5	72.0	72.8	13.6	6.7	6.9	27.2	100
	20-24	m	0.3	0.5	27.1	27.9	43.5	15.9	12.6	72.1	100
	25-29	m	0.2	0.5	11.4	12.1	67.4	12.5	8.0	87.9	100
Netherlands	15-19	9.0	38.6	5.0	42.9	86.5	12.4	m	1.1	13.5	100
	20-24	5.4	22.9	2.1	16.1	41.0	53.0	3.1	2.9	59.0	100
	25-29	1.8	2.4	m	2.7	5.1	88.9	2.7	3.3	94.9	100
Portugal	15-19	m	2.9	0.5	67.8	71.3	23.1	1.9	3.7	28.7	100
	20-24	m	6.4	1.0	23.5	30.9	60.6	4.7	3.7	69.1	100
	25-29	m	6.6	0.5	4.5	11.7	81.1	4.0	3.2	88.3	100
Spain	15-19	0.1	2.1	2.2	67.9	72.2	14.4	9.4	4.0	27.8	100
	20-24	0.1	4.0	3.5	32.9	40.4	42.0	14.5	3.1	59.6	100
	25-29	0.1	3.9	2.6	7.3	13.9	67.1	15.2	3.9	86.1	100
Sweden	15-19	m	9.7	2.6	72.9	85.2	5.5	1.4	7.8	14.8	100
	20-24	m	6.4	4.2	26.5	37.1	45.9	9.2	7.8	62.9	100
	25-29	m	7.2	3.0	11.3	21.5	68.1	6.1	4.2	78.5	100
Switzerland	15-19	42.4	7.0	m	78.8	86.4	9.1	m	m	13.6	100
	20-24	8.4	8.6	m	22.6	31.3	59.8	m	m	68.7	100
	25-29	m	3.9	m	3.7	7.5	85.2	m	m	92.5	100
Turkey	15-19	m	2.1	0.1	42.2	44.4	41.2	6.1	8.3	55.6	100
	20-24	m	2.1	0.6	15.4	18.0	61.9	12.3	7.8	82.0	100
	25-29	m	2.0	0.1	1.3	3.3	87.6	7.0	2.1	96.7	100
United Kingdom	15-19	10.4	28.4	3.8	34.3	66.5	24.1	7.0	2.4	33.5	100
	20-24	3.2	12.8	1.5	14.8	29.1	59.6	8.1	3.2	70.9	100
	25-29	0.7	8.9	0.6	2.4	11.8	77.0	6.5	4.7	88.2	100
United States[1]	15-19	m	23.9	4.5	53.9	82.3	11.4	2.5	3.8	17.7	100
	20-24	m	18.0	1.6	13.5	33.1	56.0	5.5	5.5	66.9	100
	25-29	m	8.8	0.3	2.6	11.7	80.0	3.7	4.7	88.3	100
Country mean	**15-19**	**m**	**14.4**	**2.7**	**61.2**	**78.1**	**13.3**	**4.0**	**5.1**	**21.9**	**100**
	20-24	**m**	**10.2**	**2.2**	**21.6**	**33.7**	**52.0**	**9.1**	**5.6**	**66.3**	**100**
	25-29	**m**	**5.5**	**1.3**	**5.1**	**11.8**	**76.6**	**7.7**	**4.2**	**88.2**	**100**

[1] Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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Table E2.1b. **Education and work status of young women, by age group (1998)**

		In education					Not in education				
	Age group	Students in work-study programme	Employed	Unemployed	Not in the labour force	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total	Total in education and not in education
Australia	15-19	m	33.0	5.3	39.5	77.9	13.4	5.2	3.5	22.1	100
	20-24	m	20.3	2.2	9.3	31.8	48.7	6.3	13.2	68.2	100
	25-29	m	9.9	0.6	3.6	14.0	58.7	4.1	23.2	86.0	100
Belgium	15-19	1.4	0.9	0.2	85.3	86.4	2.9	1.9	8.9	13.6	100
	20-24	0.7	3.5	1.4	37.3	42.3	37.5	9.0	11.2	57.7	100
	25-29	0.3	5.2	0.6	2.6	8.4	66.6	10.3	14.7	91.6	100
Canada	15-19	m	25.4	5.6	53.6	84.6	8.5	2.2	4.7	15.4	100
	20-24	m	18.6	1.6	20.2	40.4	41.5	6.8	11.4	59.6	100
	25-29	m	7.1	0.7	4.9	12.8	65.8	6.2	15.3	87.2	100
Czech Republic	15-19	m	1.2	0.4	67.6	69.2	13.2	3.9	13.7	30.8	100
	20-24	m	0.5	0.2	16.1	16.8	53.6	5.7	23.9	83.2	100
	25-29	m	0.1	0.0	1.6	1.7	58.0	6.7	33.6	98.3	100
Denmark[1]	15-19	m	42.4	1.0	36.6	80.0	10.3	0.9	8.8	20.0	100
	20-24	m	26.6	4.7	9.9	41.2	40.1	4.3	14.3	58.8	100
	25-29	m	12.6	7.1	5.7	25.4	55.3	6.7	12.5	74.6	100
Finland	15-19	m	12.0	12.0	64.4	88.3	7.1	3.3	1.3	11.7	100
	20-24	m	15.1	12.7	30.8	58.6	27.2	5.7	8.5	41.4	100
	25-29	m	10.7	4.4	6.1	21.2	55.9	7.3	15.7	78.8	100
France	15-19	m	1.9	m	92.5	94.4	1.3	1.4	3.0	5.6	100
	20-24	m	5.0	m	44.2	49.2	28.1	13.2	9.5	50.8	100
	25-29	m	2.2	m	4.4	6.5	62.3	13.9	17.3	93.5	100
Germany	15-19	17.6	20.7	0.9	70.5	92.1	4.2	1.4	2.3	7.9	100
	20-24	12.8	17.8	0.3	19.9	38.0	44.5	5.5	12.0	62.0	100
	25-29	0.8	4.3	0.3	6.0	10.6	64.5	5.7	19.2	89.4	100
Greece[1]	15-19	a	0.4	0.9	81.0	82.3	6.0	6.3	5.5	17.7	100
	20-24	a	1.5	1.7	29.7	33.0	31.4	19.7	15.9	67.0	100
	25-29	a	0.9	0.3	3.4	4.7	51.8	14.9	28.6	95.3	100
Italy	15-19	m	0.1	0.4	76.3	76.8	7.8	6.4	9.0	23.2	100
	20-24	m	0.4	1.4	35.2	37.0	31.3	15.5	16.2	63.0	100
	25-29	m	0.2	0.5	11.5	12.2	48.0	14.0	25.8	87.8	100
Netherlands	15-19	4.2	39.3	6.9	42.9	89.1	9.4	m	1.6	10.9	100
	20-24	2.3	21.6	1.9	14.0	37.5	52.2	2.1	8.2	62.5	100
	25-29	0.7	1.5	m	2.1	3.6	78.0	2.8	15.7	96.4	100
Portugal	15-19	m	3.2	0.8	71.8	75.9	15.8	3.5	4.8	24.1	100
	20-24	m	7.7	1.7	27.6	37.0	49.4	5.3	8.2	63.0	100
	25-29	m	4.2	0.8	5.0	10.1	70.3	5.8	13.8	89.9	100
Spain	15-19	0.1	1.4	2.9	76.2	80.5	7.3	8.0	4.2	19.5	100
	20-24	0.0	4.9	6.6	38.8	50.3	27.1	16.4	6.1	49.7	100
	25-29	0.1	4.3	4.9	8.5	17.7	46.8	18.3	17.2	82.3	100
Sweden	15-19	m	13.1	4.0	70.6	87.6	5.5	1.9	4.9	12.4	100
	20-24	m	9.9	3.9	30.6	44.4	39.2	5.8	10.6	55.6	100
	25-29	m	8.8	3.1	15.3	27.2	58.7	5.2	8.9	72.8	100
Switzerland	15-19	24.0	12.4	m	69.9	82.8	11.2	m	m	17.2	100
	20-24	10.5	m	m	21.1	25.3	56.7	6.2	11.7	74.7	100
	25-29	m	m	m	m	m	78.4	4.9	12.9	96.2	100
Turkey	15-19	m	1.2	0.2	30.8	32.1	23.8	3.3	40.7	67.9	100
	20-24	m	1.3	0.4	6.9	8.6	29.1	4.5	57.8	91.4	100
	25-29	m	1.1	0.2	0.9	2.2	29.7	3.0	65.1	97.8	100
United Kingdom	15-19	4.7	32.0	3.8	33.4	69.3	19.9	4.4	6.4	30.7	100
	20-24	2.3	14.1	1.5	14.7	30.3	49.9	4.1	15.6	69.7	100
	25-29	0.9	9.4	0.6	3.7	13.7	60.6	3.9	21.8	86.3	100
United States[1]	15-19	m	25.1	3.8	54.0	82.9	9.3	1.9	6.0	17.1	100
	20-24	m	22.7	0.7	12.1	35.5	45.4	4.5	14.6	64.5	100
	25-29	m	8.2	0.2	3.5	11.9	64.8	4.4	18.9	88.1	100
Country mean	**15-19**	**m**	**14.8**	**3.1**	**62.0**	**79.6**	**9.8**	**3.5**	**7.6**	**20.4**	**100**
	20-24	**m**	**11.3**	**2.7**	**23.3**	**36.5**	**40.7**	**7.8**	**14.9**	**63.5**	**100**
	25-29	**m**	**5.3**	**1.6**	**5.2**	**12.0**	**59.7**	**7.7**	**21.1**	**88.5**	**100**

[1] Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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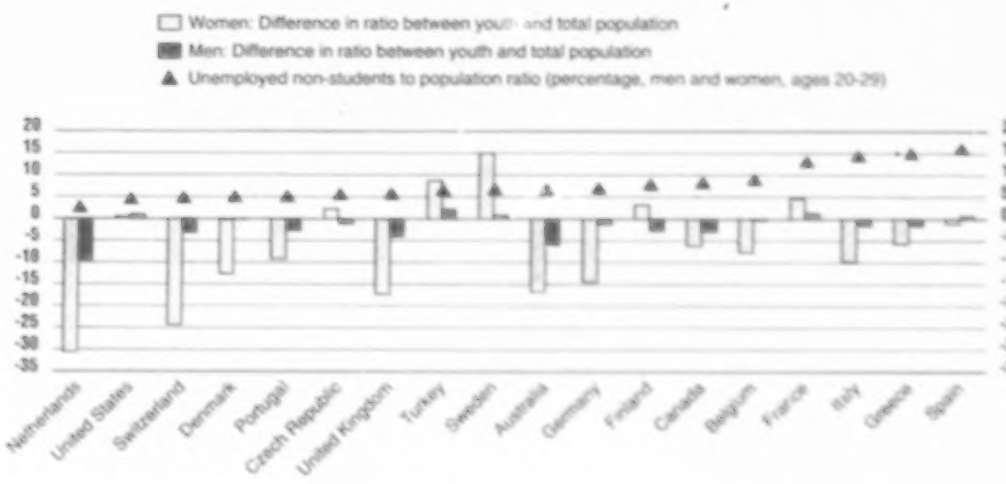
SPECIFIC SITUATION OF THE YOUTH POPULATION

- Only four out of 18 countries have more part-time employment among young people than among the working population as a whole.
- In two other countries, the proportions of part-time work are practically the same.
- In every other country, part-time work is less common among the young, particularly among young women.

Chart E3.1. **Difference in ratio of part-time employment between youth and total population (1998)**



Source: OECD.

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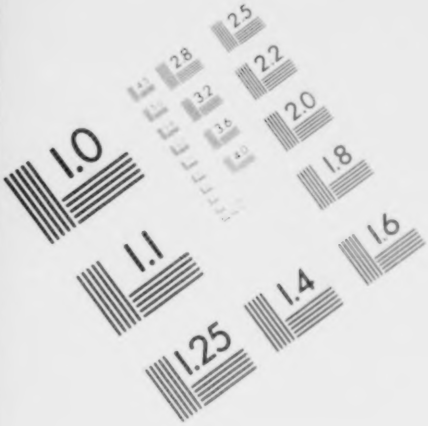

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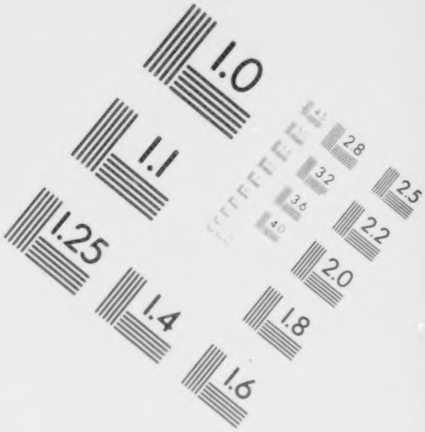

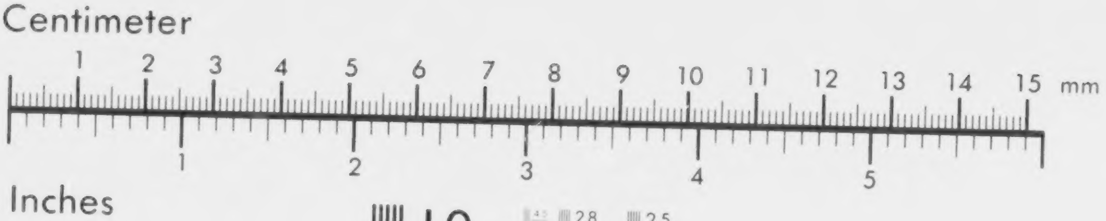
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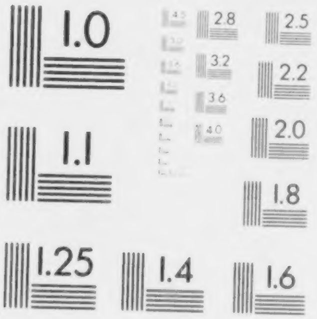
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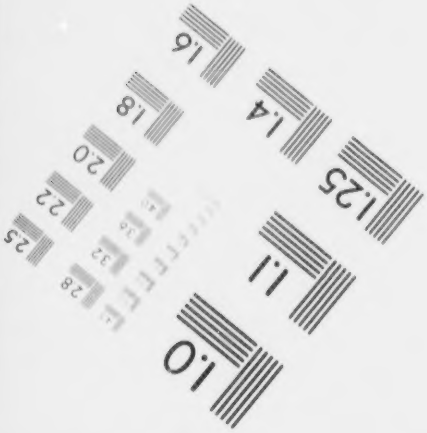

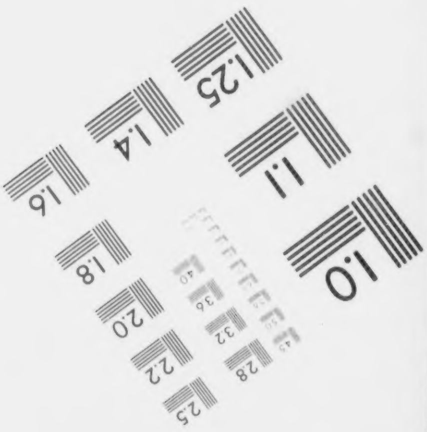

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POLICY CONTEXT

Do young people differ from other age groups with respect to part-time and temporary employment?

At issue in this indicator is the kind of work available to young people leaving the education system. Part-time work is becoming more widespread, as are fixed-term contracts and temporary jobs. But labour-market regulations differ widely between countries. Levels of these specific forms of employment cannot be considered in absolute terms with regard to young people, only in relation to employment as a whole.

To what extent do the jobs held by young people differ from those held by the labour force as a whole? By and large, does the trend towards more part-time or fixed-term employment particularly affect young people? Do young people, who are by definition job-seekers leaving the education system, form a population that is specifically targeted by new forms of labour flexibility? Is the pressure of unemployment encouraging the development of these more insecure or financially less rewarding forms of employment? Any discussion of these questions must again be confined to young people who have left the education system. The reason is that those who are still in education naturally tend to combine their studies with what is often part-time or fixed-term employment, but it will usually be a subsidiary rather than a first main job.

Another issue is the situation of young people who are no longer in education but not yet in work. Entry to the labour market is often a difficult period of transition. While there has been a significant increase in the length of time spent in education, a significant proportion of young people are threatened with exclusion if they are neither in education nor in work, i.e. unemployed or in non-employment. This situation gives particular cause for concern in respect of younger age groups, many of whom have no unemployment status or any other welfare cover (see A *Caring World*, OECD, 1999).

EVIDENCE AND EXPLANATIONS

Part-time and temporary employment for young people aged 20-29

There appears to be no systematic difference between the proportions of younger and older people in part-time employment.

Part-time work as a proportion of all employment varies very widely, from 3 per cent in the Czech Republic to 30 per cent in the Netherlands. In all countries, part-time work is unevenly distributed between the genders. In most cases, one in four to five jobs for women is part-time, compared with only one in ten to 20 jobs for men. The same pattern is found among jobs held by young people, since the proportion of part-time work varies widely between countries, and is generally three to four times greater where women are concerned. The characteristics of part-time employment for young people reflect those of adults to some extent. Overall, 20 to 29-year-olds who are no longer in education do not specifically tend to hold part-time jobs.

Of the 18 countries on which data have been gathered, only four (France, Sweden, Turkey and the United States) have more part-time employment among young people than among the working population as a whole. In two other countries, the Czech Republic and Spain, the proportions of part-time work are practically the same for young people and the population as a whole. In every other country, part-time work is less common among the young, particularly among young women. It is in fact the employment patterns of women under

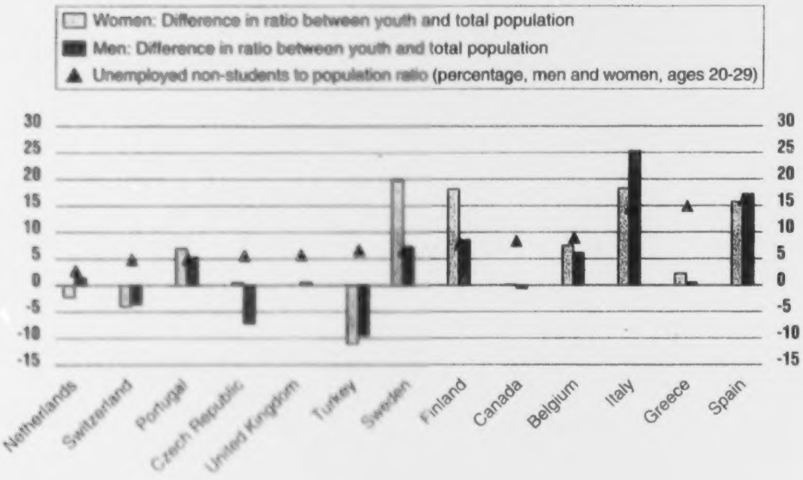
30 that cause the disparities in rates. After that age, part-time work for women is more common, probably because of heavier family responsibilities and greater scope for such work with growth in household incomes. Before the age of 30, young women are more likely to be in full-time employment, although they also work part-time much more often than young men (Table E3.1).

The pressure of unemployment does not appear to have any significant impact on the incidence of part-time work even though it is noticeable that where unemployment is lowest, part-time work is relatively less common among the young. Disparities between young people and the population as a whole are also smaller when unemployment is high. But there are many examples to the contrary, suggesting that the cause lies in the various forms of regulation governing part-time work.

While there seems to be no systematic difference between the proportions of younger and older people in part-time employment, this is not true of fixed-term or temporary employment. Once again, youth employment in such jobs should be compared with employment as a whole. There are major disparities between countries in the incidence of this type of work, presumably caused by differences in regulation rather than in the quality of jobs available or the degree of job insecurity. From the data gathered, young people would appear to be given more temporary contracts, which may be construed as an adjustment strategy or a mutual trial period for both employee and employer.

However, young people are employed on a temporary basis much more often than older people.

Chart E3.2. **Difference in ratio of temporary employment between 20-29 year-olds and total population (1998)**



Source: OECD.

The incidence of temporary work is the same in both the 20-29 age group and the working population as a whole in only four out of the 13 countries, and considerably smaller in only three countries. All the other countries show a very high proportion of young people in temporary work, especially those countries with the highest proportion of youth unemployment.

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Of the 13 countries on which data have been gathered, in only four (Canada, Greece, the Netherlands and the United Kingdom) is the incidence of temporary work the same among the 20-29 age group as among the working population as a whole. In only three (the Czech Republic, Switzerland and Turkey) is the proportion of temporary work among the age group 20 to 29 years considerably smaller than among the working population as a whole. All the other countries show a very high proportion of young people doing temporary work, especially those countries with the highest proportion of youth unemployment. It is the common pattern for such jobs to go to young people, both in countries where this form of employment is uncommon (*e.g.* Italy), and where it is widespread (*e.g.* Spain).

Young people not in education or work

Most young people between 15 and 19 years of age are still at school. In many countries, a high percentage of those who are not, are either unemployed or not in the labour force.

Between the ages of 15 and 19, over four out of five young people are in education in most countries. A small proportion of those who are not at school are in work, although this sometimes very low figure rises to 10 or 20 per cent in some countries (Table E2.1).

One group of young people find themselves in adverse circumstances, being no longer in education but not yet in work. Some have unemployment status if they are actively seeking work, while those who are not doing so for some reason are considered to be in non-employment. Their reasons can be many and varied: discouragement owing to difficulty in finding work, or voluntary withdrawal because of family circumstances, travel, etc. In 14 out of 18 countries, the proportion of these young people is even higher than the proportion of those with unemployment status

To be out of education or out of employment is a very uncommon situation in Germany and the Netherlands. Conversely, it is disturbingly common in Belgium, the Czech Republic, Italy, Spain, Turkey and the United Kingdom. In these countries, over 10 per cent of young people aged 15 to 19 are neither at school nor in work (Table E2.1). In other countries, the proportion is lower but not insignificant, ranging from 5 to 10 per cent. The problem mainly affects young men in Austria, Finland and Sweden, and young women in Greece, Portugal and Turkey (Chart E3.3). The most extreme case is Turkey, where 44 per cent of 15 to 19-year-old women are neither at school nor in employment. However, only 8 per cent of these women are unemployed, the rest being not in the labour force.

Between the ages of 20 and 24, the scale of the problem grows but its nature also changes because most young people are entering the labour market at that time.

Between the ages of 20 and 24, the scale of the problem grows but its nature also changes. This is the age at which most young people are entering the labour market. Most of them have just completed their initial education. Entry to the job market often involves a phase of unemployment. The proportion of young men in this age group who are neither in education nor in work is around 15 per cent, over 5 percentage points higher than that of 15 to 19-year-olds. In countries where young people spend less time in education and enter the labour market earlier, the figure rises very little, as in Portugal and the United Kingdom, and it even declines in the Czech Republic. Unemployment among first-time labour-market entrants makes its full effect felt in Finland, France and Italy, where the proportion of young men neither in education nor in work is more than twice as high among 20 to 24-year-olds as among 15 to 19-year-olds. In Finland and Italy, over 10 per cent of young men aged 20 to 24 years are in non-employment.

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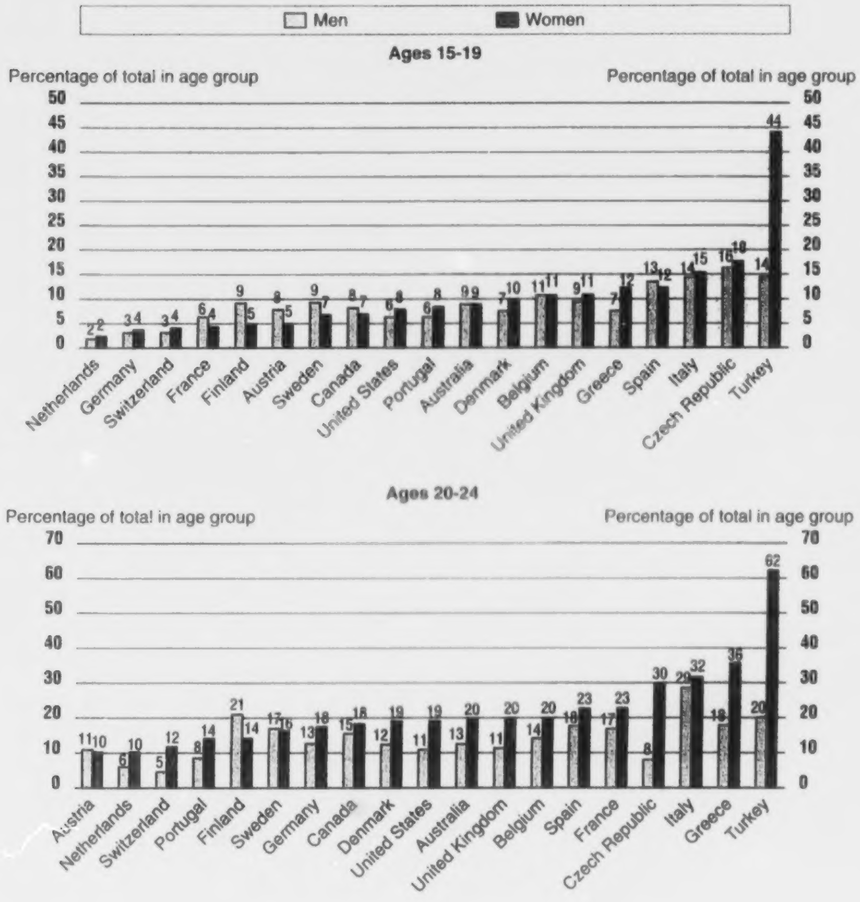
Chart E3.3. **Youth not in education or work, by age group and gender (1998)**



Source: OECD.

In Germany and the Netherlands, the vast majority of youth aged 15 to 19 are either in school or employed.

In Belgium, the Czech Republic, Italy, Spain, Turkey and the United Kingdom, however, the percentage of the same age group neither in school nor at work is high enough for concern.

Between 20 and 24, while the problem increases in the latter group of countries, the nature of the problem also changes, for this is the age at which most young people are entering the labour market.

Among young women aged 20 to 24 years, the increase is even more spectacular since the average rate for all countries is 22 per cent, which is more than twice that of the younger group. In addition to the general phenomenon of unemployment among first-time labour-market entrants, there is still a significant withdrawal of women from the labour market in some countries, such as the Czech Republic, Greece and Turkey.

DEFINITIONS

The statistics presented here are calculated from labour force survey data on age-specific proportions of young people in each of the specified categories. The definitions of the various labour force statuses are based on the ILO guidelines. The data for this indicator were calculated from the special collection for indicator E2.

Table E3.1. **Part-time and temporary employment for youth between the ages of 20 and 29, by gender**

			Ratio of employed, part-time non-students to employed non-students (20-29)	Ratio of part time employed to total employed (total adults)	Ratio of employed, temporary job non-students to employed non-students (20-29)	Ratio of temporary employed to dependent employed (total adults)[1]	Unemployed non-students to population ratio (20-29)
Australia	1998	Men	8.6	14.4	m	m	8.1
		Women	24.1	40.7	m	m	5.1
		M + W	15.6	25.9	m	m	6.6
Belgium	1998	Men	4.7	4.9	12.1	5.9	8.0
		Women	24.6	32.2	17.9	10.4	9.7
		M + W	13.6	16.3	14.7	7.8	8.8
Canada	1998	Men	7.7	10.5	10.5	11.1	10.0
		Women	22.5	28.6	12.8	12.6	6.5
		M + W	14.7	18.7	11.6	11.8	8.2
Czech Republic	1998	Men	0.7	1.7	0.4	7.5	4.9
		Women	7.8	5.4	8.3	7.8	6.2
		M + W	3.5	3.3	3.5	7.6	5.5
Denmark	1997	Men	11.2	11.1	m	m	4.3
		Women	11.8	24.2	m	m	5.6
		M + W	11.5	17.1	m	m	5.0
Finland	1998	Men	4.1	6.8	21.8	13.3	9.1
		Women	16.3	13	40.1	21.9	6.5
		M + W	9.5	9.7	29.9	17.7	7.8
France	1998	Men	7.2	5.8	m	m	12.5
		Women	29.7	25	m	m	13.6
		M + W	18.0	14.8	m	m	13.1
Germany	1998	Men	3.5	4.6	m	m	8.2
		Women	18.1	32.4	m	m	5.6
		M + W	10.0	16.6	m	m	6.9
Greece	1997	Men	3.3	4.8	10.8	10.2	12.1
		Women	8.6	14.1	14.1	11.9	17.3
		M + W	5.5	8.2	12.2	10.9	14.9
Italy	1998	Men	4.0	5.5	32.9	7.5	14.1
		Women	13.0	22.7	28.6	10.3	14.7
		M + W	7.7	11.8	31.1	8.6	14.4
Netherlands	1998	Men	3.1	12.4	11.6	10.2	2.9
		Women	24.4	54.8	14.0	16.1	2.5
		M + W	13.1	30	12.8	12.7	2.7
Portugal	1998	Men	2.5	5.2	21.5	16.2	4.4
		Women	6.6	15.8	25.6	18.6	5.6
		M + W	4.4	9.9	23.4	17.3	5.0
Spain	1998	Men	3.6	2.9	49.3	32.1	14.8
		Women	15.6	16.6	50.2	34.4	17.3
		M + W	8.3	7.7	49.7	32.9	16.0
Sweden	1998	Men	6.4	5.6	17.9	10.6	7.6
		Women	37.1	22	35.1	15.2	5.5
		M + W	20.3	13.5	25.7	12.9	6.6
Switzerland	1998	Men	4.2	7.2	8.4	11.9	4.3
		Women	21.4	45.8	6.6	10.6	5.3
		M + W	12.8	24.2	7.3	11.3	4.8
Turkey	1998	Men	5.6	3.4	11.2	20.6	9.6
		Women	22.1	13.3	3.4	14.4	3.8
		M + W	10.6	6.2	8.8	19.5	6.5
United Kingdom	1998	Men	4.2	8.2	6.6	6	7.2
		Women	24.1	41.2	8.4	8.3	4.0
		M + W	12.9	23	7.4	7.1	5.7
United States	1997	Men	9.3	8.3	m	m	4.5
		Women	20.1	19.5	m	m	4.4
		M + W	14.2	13.6	m	m	4.5
Country mean		**Men**	**5.2**	**6.9**	**16.5**	**12.5**	**8.2**
		Women	**19.3**	**26.0**	**20.4**	**14.8**	**7.7**
		M + W	**11.5**	**15.0**	**18.3**	**13.7**	**7.9**

[1] Greece: year of reference 1998.

Source: OECD Database. See Annex 3 for notes.

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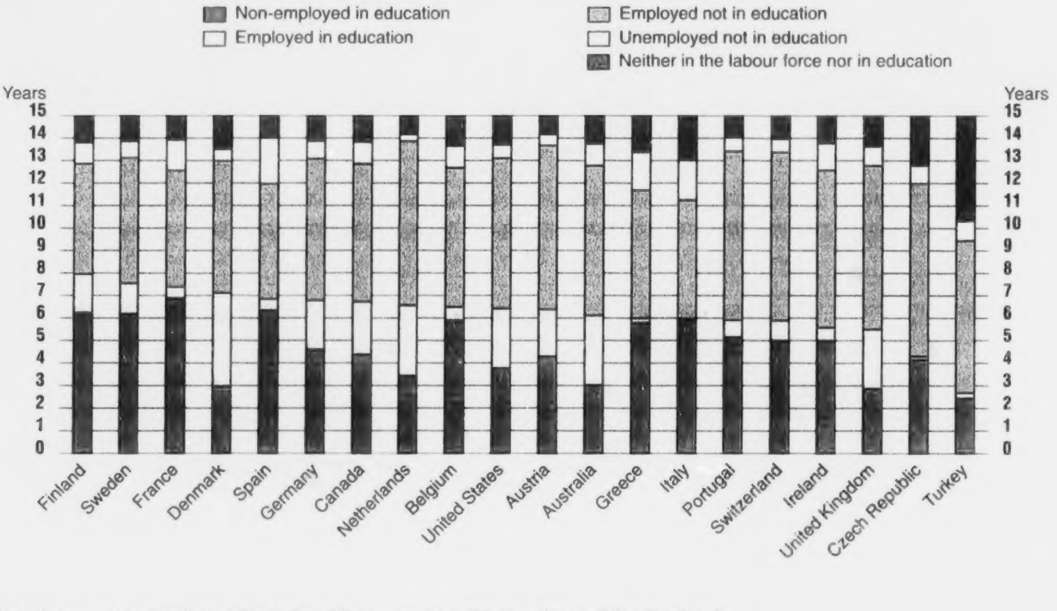
EXPECTED YEARS IN EDUCATION AND WORK BETWEEN THE AGES OF 15 AND 29

- On average, a person aged 15 can expect to be in education for a little over six years. The gap between the two extreme national averages is around two years, although in 13 of the 20 countries studied, the figure ranges from 5.9 to 7.1 years.
- A young person aged 15 can expect to hold a job for 6.5 of the 15 years to come, to be unemployed for a total of one year and to be out of the labour market for 1.5 years. It is in the average duration of spells of unemployment that countries vary most, which reflects differences in youth employment rates.
- In absolute terms, young people today can expect to spend less time in unemployment after completing their initial education than they could ten years ago.

Chart E4.1. **Expected years in education and work between 15 and 29 years of age (1998)**



Countries are ranked in descending order of the percentage of the youth population in education.

Source: OECD.

POLICY CONTEXT

The past decade has seen an extension of participation in education by young people, who as a result delay their definitive entry into the world of work (see the 1998 edition of *Education at a Glance*). Some of this additional time is spent combining work and education, a practice that is widespread in some countries. Once young people have completed their education, access to the labour market is often impeded by spells of unemployment or non-employment, although this situation affects men and women differently. In absolute terms, however, young people today can expect to spend less time in unemployment after completion of initial education than they could ten years ago.

EVIDENCE AND EXPLANATIONS

On the basis of the current situation of persons between the ages of 15 and 29, this indicator gives a picture of the major trends affecting the transition from school to work.

On average, a person aged 15 today can expect to be in education for about another six years.

On average, a person aged 15 in 1998 can expect to be in education for a little over six years (Table E4.1). Between 1985 and 1996, this figure rose by almost 1.5 years. Since 1996, the overall increase has been slower. Countries where young people used to spend relatively less time in education have made up some ground, whereas those in which they stayed in education longest are now recording little increase.

In 13 of the 20 countries studied, expected years in education at the age of 15 range from 5.9 to 7.1 years. There is, however, a gap of around two years separating Finland, France and Sweden (7.5 years on average) from the Czech Republic, Ireland and the United Kingdom (5.5 years on average).

There are few differences between men and women.

The average overall figure is marginally higher for women (6.3 compared with 6.2 years). In many countries, the figures are about the same, but Turkey stands out as an exception, with only 2.1 years of expected education for young women aged 15 years. At the other end of the scale, a longer period of education often goes hand in hand with a higher figure for women (Table E4.1).

The figure for expected years of education covers some very different combinations of education and work. Employment combined with education includes work-study programmes and part-time jobs. While such combinations are rare in half of the countries studied, in the other half they account for between one and four of the additional six to seven years that young people expect to spend in education.

A person aged 15 today can expect to hold a job for 6.5 years, to be unemployed for one year and to be out of the labour force for 1.5 years in the 15 years up to and including the age of 29.

In addition to the average six years spent in education, a young person aged 15 can expect to hold a job for 6.5 of the 15 years to come, to be unemployed for a total of one year and to be out of the labour market for 1.5 years, neither in education nor seeking work. It is worth noting that, in absolute terms, young people can expect to spend less time in unemployment after completion of initial education than they could ten years ago.

It is in the average duration of spells of unemployment that countries vary most, which mainly reflects differences in youth employment rates. The

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cumulative average duration of unemployment is well below one year in Austria, Denmark, the Netherlands, Portugal, Switzerland and the United States, but amounts to nearly two years in the Mediterranean countries.

By and large, men and women differ very little in terms of the expected number of years in unemployment. However, while the situation is similar for both genders in many countries, women are clearly at a disadvantage in Greece and at an advantage in Australia, Canada, Ireland, Turkey and the United Kingdom. In some of these countries, however, notably in Australia, the United Kingdom and, in particular, Turkey, the lower expectancy for women is largely influenced by the fact that many women leave the labour market, thereby reducing pressure on jobs.

Whereas young men can expect to spend little more than six months neither in education nor in the labour force between the ages of 15 and 29, for women the average is over two years. In the Nordic countries (Denmark, Finland and Sweden), young men and young women do not differ in this measure. Conversely, in the Czech Republic, Greece, Turkey and the United Kingdom there is a much stronger tendency for young women to leave the labour market. In all of the other countries, women between the ages of 15 and 29 spend an average of about one year more than men outside the labour market.

DEFINITIONS

The statistics presented here are calculated from labour force survey data on age-specific proportions of young people in each of the specified categories. These proportions are then summed over the 15 to 29 age group to yield the expected number of years spent in the various situations indicated. The calculation thus assumes that young persons currently aged 15 years will show the same pattern of education and work between the ages of 15 and 29 as that currently experienced by persons between those age limits in the given data year.

Persons in education may include those attending part-time as well as full-time. The definitions of the various labour force statuses are based on the ILO guidelines. The data for this indicator were calculated from the special collection for Indicator E2.

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Table E4.1. **Expected years in education and work between 15 and 29 years of age, by gender (1998)**

		Expected years in education			Expected years not in education			
		Not employed	Employed	Sub-total	Employed	Unemployed	Not in the labour force	Sub-total
Australia	Men	3.0	3.1	6.1	7.3	1.2	0.5	8.9
	Women	3.0	3.2	6.2	6.0	0.8	2.0	8.8
	M + W	3.0	3.1	6.1	6.7	1.0	1.2	8.9
Austria[1]	Men	4.1	2.7	6.8	7.3	0.6	0.4	8.2
	Women	4.5	1.6	6.0	7.3	0.5	1.2	9.0
	M + W	4.3	2.1	6.4	7.3	0.5	0.8	8.6
Belgium	Men	5.8	0.6	6.4	6.8	0.9	0.9	8.6
	Women	6.1	0.5	6.5	5.6	1.1	1.8	8.5
	M + W	5.9	0.6	6.5	6.2	1.0	1.3	8.5
Canada	Men	4.4	2.2	6.6	6.5	1.2	0.7	8.4
	Women	4.3	2.6	6.9	5.8	0.8	1.6	8.1
	M + W	4.4	2.4	6.7	6.1	1.0	1.1	8.3
Czech Republic	Men	4.1	0.2	4.2	9.2	0.7	0.8	10.8
	Women	4.3	0.1	4.4	6.2	0.8	3.6	10.6
	M + W	4.2	0.1	4.3	7.7	0.8	2.2	10.7
Denmark[2]	Men	2.7	4.2	6.9	6.5	0.5	1.1	8.1
	Women	3.3	4.1	7.3	5.3	0.6	1.8	7.7
	M + W	3.0	4.2	7.1	5.9	0.5	1.5	7.9
Finland	Men	6.0	1.6	7.6	5.3	1.1	1.1	7.4
	Women	6.5	1.9	8.4	4.5	0.8	1.3	6.6
	M + W	6.3	1.7	8.0	4.9	0.9	1.2	7.0
France	Men	6.6	0.6	7.2	5.8	1.4	0.6	7.8
	Women	7.1	0.5	7.6	4.6	1.4	1.5	7.4
	M + W	6.9	0.5	7.4	5.2	1.4	1.1	7.6
Germany	Men	4.5	2.4	6.9	6.7	0.9	0.4	8.1
	Women	4.7	2.0	6.8	5.9	0.6	1.7	8.2
	M + W	4.6	2.2	6.8	6.3	0.8	1.1	8.2
Greece[2]	Men	5.8	0.2	5.9	7.1	1.4	0.6	9.1
	Women	5.9	0.1	6.0	4.5	2.0	2.5	9.0
	M + W	5.8	0.2	6.0	5.7	1.7	1.6	9.0
Ireland[1]	Men	4.8	0.7	5.5	7.5	1.5	0.6	9.5
	Women	5.3	0.6	5.8	6.6	1.0	1.6	9.2
	M + W	5.0	0.6	5.7	7.0	1.2	1.1	9.3
Italy	Men	5.6	n	5.6	6.2	1.8	1.4	9.4
	Women	6.3	n	6.3	4.4	1.8	2.5	8.7
	M + W	5.9	n	6.0	5.3	1.8	2.0	9.0
Netherlands	Men	3.4	3.2	6.6	7.7	0.3	0.4	8.3
	Women	3.4	3.1	6.5	7.0	0.2	1.3	8.5
	M + W	3.4	3.1	6.6	7.3	0.3	0.8	8.4
Portugal	Men	4.9	0.8	5.7	8.2	0.5	0.5	9.3
	Women	5.4	0.8	6.1	6.8	0.7	1.3	8.9
	M + W	5.1	0.8	5.9	7.5	0.6	0.9	9.1
Spain	Men	5.8	0.5	6.3	6.2	2.0	0.6	8.7
	Women	6.9	0.5	7.4	4.1	2.1	1.4	7.6
	M + W	6.4	0.5	6.9	5.1	2.0	1.0	8.1
Sweden	Men	6.0	1.2	7.2	6.0	0.8	1.0	7.8
	Women	6.4	1.6	8.0	5.2	0.5	1.2	7.0
	M + W	6.2	1.4	7.6	5.6	0.7	1.1	7.4
Switzerland	Men	5.3	1.0	6.3	7.7	0.5	0.5	8.7
	Women	4.7	0.9	5.6	7.4	0.6	1.4	9.4
	M + W	5.0	0.9	5.9	7.5	0.6	1.0	9.1
Turkey	Men	3.0	0.3	3.3	9.5	1.3	0.9	11.7
	Women	2.0	0.2	2.1	4.1	0.5	8.2	12.9
	M + W	2.5	0.2	2.7	6.8	0.9	4.7	12.3
United Kingdom	Men	2.9	2.5	5.4	8.0	1.1	0.5	9.6
	Women	2.9	2.8	5.7	6.5	0.6	2.2	9.3
	M + W	2.9	2.6	5.5	7.3	0.9	1.3	9.5
United States[2]	Men	3.8	2.5	6.4	7.4	0.6	0.7	8.6
	Women	3.7	2.8	6.5	6.0	0.5	2.0	8.5
	M + W	3.8	2.7	6.4	6.7	0.6	1.3	8.6
Country mean	**Men**	**4.6**	1.5	6.1	7.1	1.0	0.7	8.9
	Women	**4.8**	1.5	6.3	5.7	0.9	2.1	8.7
	M + W	**4.7**	1.5	6.2	6.4	1.0	1.4	8.8

1. Year of reference 1996.
2. Year of reference 1997.

Source: OECD Database. See Annex 3 for notes.

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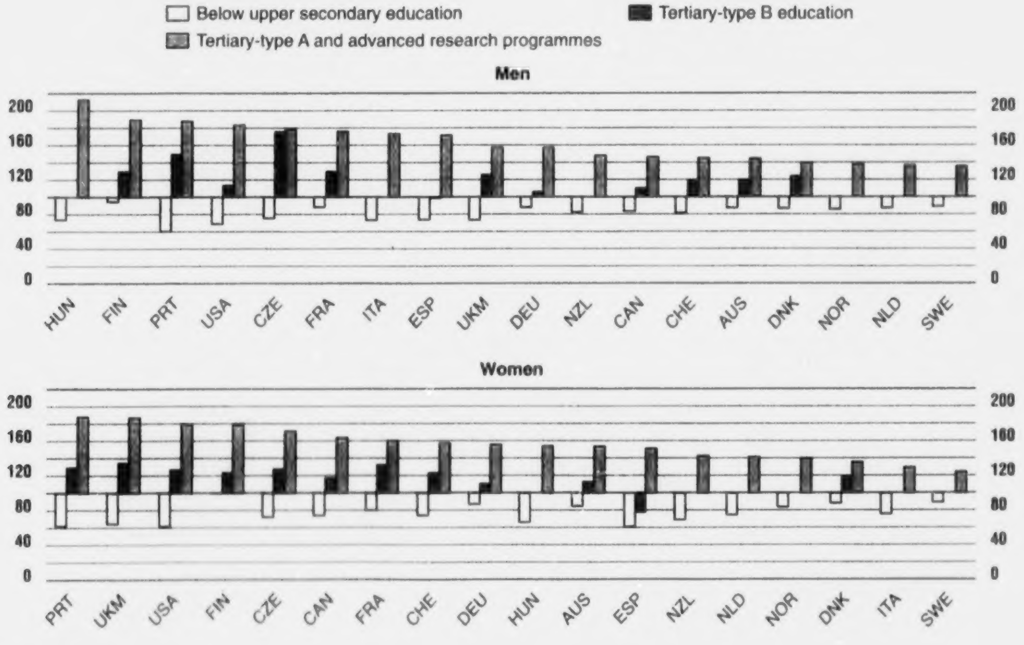
EARNINGS AND EDUCATIONAL ATTAINMENT

- Education and earnings are positively linked. Upper secondary education is a break-point in many countries, beyond which additional education attracts a particularly high premium. In all countries, graduates of tertiary-level education earn substantially more than upper secondary graduates. Earnings differentials between tertiary and upper secondary education are generally more pronounced than those between upper secondary and lower secondary or below.
- Earnings of people with education below upper secondary tend to be 60-90 per cent of those of upper secondary graduates.
- Tertiary education enhances earnings relative to upper secondary education much more for women than for men in five countries, whereas the reverse is true in the remaining countries.

Chart E5.1. **Relative earnings of 25 to 64 year-olds with income from employment by level of educational attainment and gender**
Upper secondary and post-secondary non-tertiary education = 100



Source: OECD.

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POLICY CONTEXT

This indicator shows the earnings of workers of differing educational attainment relative to those of individuals with upper secondary attainment.

One way in which markets provide incentives for workers to develop and maintain appropriate levels of skills is through wage differentials, in particular through the enhanced earnings accorded to persons completing additional education. The pursuit of higher levels of education can also be viewed as an investment in human capital. Human capital is the stock of skills that individuals maintain or develop, usually through education or training, and then offer in return for earnings in the labour market. The higher earnings that result from increases in human capital are the return on that investment and the premium paid for enhanced skills and/or to higher productivity. Earnings differentials are a measure of the current financial incentives in a particular country for an individual to invest in further education. Earnings differentials according to educational attainment may also reflect differences in the supply of educational programmes at different levels or the barriers in access to those programmes.

EVIDENCE AND EXPLANATIONS

Education and earnings for men and women

Education and earnings are positively linked, whatever the type of socio-economic system or the degree of economic development.

A substantial body of empirical research has shown the statistical connections between educational attainment and earnings. In many of these studies, educational attainment is regarded not only as a qualification that offers access to particular kinds of jobs and careers but also – in the absence of variables that measure skills directly – as an indicator of individuals' knowledge and skills.

The economic benefit of completing tertiary education can be seen by comparing the ratio of the mean annual earnings of those who attended and graduated from tertiary education with the mean annual earnings of upper secondary graduates. The earnings disadvantage from not completing upper secondary education is apparent from a similar comparison (Chart E5.1 and Table E5.1). Variations in relative earnings (before taxes) between countries reflect a number of factors, including skill demands in the workforce, minimum-wage legislation, the strength of unions, the coverage of collective-bargaining agreements, the supply of workers at the various levels of educational attainment, the range of work experience of workers with high and low educational attainment, the distribution of employment between occupations and the relative incidence of part-time and part-year work among workers with varying levels of educational attainment.

Upper secondary education is a break-point in many countries, beyond which additional education attracts a particularly high premium.

The data in Table E5.1 show a strong positive relationship between educational attainment and earnings. In all countries, graduates of tertiary-level education earn substantially more than upper secondary graduates. Earnings differentials between tertiary and upper secondary education are generally more pronounced than those between upper secondary and lower secondary or below, suggesting that upper secondary education is a break-point in many countries, beyond which additional education attracts a particularly high premium. Among those countries which report gross earnings, the earnings premium for men aged 25-64 years with tertiary-level education ranges from less than 40 per cent in Denmark, the Netherlands, Norway and Sweden, to 80 per cent or more in Finland, Hungary, Portugal and the United States.

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For women in the same age group, the premium for tertiary over upper secondary education ranges from around 30 per cent in Italy and Sweden to almost 90 per cent in Ireland, Portugal and the United Kingdom. Tertiary education enhances earnings relative to upper secondary education much more for women than for men in Australia, Canada, Ireland, Switzerland and the United Kingdom, whereas the reverse is true in the remaining countries, especially in Hungary, Italy and Spain.

Earnings of people with below upper secondary education tend to be 60-90 per cent of those of upper secondary graduates.

Earnings of men and women with below upper secondary attainment tend to be between 60 and 90 per cent of those of individuals who have completed upper secondary education. In 14 out of 19 OECD countries, men with lower levels of education fare slightly better than women relative to individuals of the same gender who have completed upper secondary education.

The earnings data shown in this indicator differ between countries in a number of ways that may render some country-to-country comparisons of relative earnings unreliable. Caution should therefore be exercised in interpreting the results. In particular, in countries reporting annual earnings, differences in the incidence of part-year work among individuals with different levels of educational attainment will have an effect on relative earnings that is not reflected in the data for countries reporting weekly or monthly earnings (see definitions below).

EDUCATION AND GENDER DISPARITY IN EARNINGS

Women still earn less than men with similar levels of educational attainment.

Although both men and women with upper secondary or tertiary attainment have substantial earnings advantages compared with those of the same gender who do not complete upper secondary education, earnings differentials between men and women with the same educational attainment remain substantial, reinforced by the incidence of part-time work for women.

In some countries the gender gap in earnings narrows with increasing educational attainment; in others it widens.

When all levels of education are taken together, women's earnings between the ages of 30 and 44 range from about one-half of those of men in Switzerland and the United Kingdom to around 77 per cent of those of men in Hungary and Spain (Table E5.2). In a number of countries, but especially in the Netherlands, New Zealand and the United Kingdom, earnings differentials between men and women narrow with increasing educational attainment. In a number of other countries, by contrast, including Italy and Sweden, the reverse relationship tends to be true: earnings differences between men and women tend to be particularly high at the tertiary level. Thus, although higher educational attainment is generally associated with higher earnings for both men and women, it does not seem to contribute systematically to reductions in gender inequality in earnings.

Some of the differences in earnings between men and women may be explained by differences in career and occupational choices between men and women, differences in the amount of time men and women spend in the labour market, and the relatively high incidence of part-time work among women.

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There may be a movement towards more equality of earnings between younger men and women.

Earnings data by age suggest that there may be a movement towards more equality of earnings between men and women of comparable educational attainment. In eight countries out of 18, the ratio of female to male earnings at the tertiary level is more than 10 percentage points higher among 30-44 year-olds than among 55-64 year-olds (Table E5.2). Hungary is the only country where the gender gap in earnings is considerably wider for younger than for older workers. Although the trend towards gender equality in earnings is less obvious for the other levels of educational attainment, it is clearly reflected in the overall numbers as well. This result might also be influenced by the increased proportion of women among younger tertiary graduates.

DEFINITIONS

Data are derived from national labour force surveys (for details see Annex 3).

Relative earnings from employment are defined as the mean earnings (income from work before taxes) of persons at a given level of educational attainment divided by the mean earnings of persons with upper secondary school attainment. This ratio is then multiplied by 100. The estimates are restricted to individuals with income from employment during the reference period.

Earnings data in Tables E5.1 and E5.2 are annual for most countries; for France, Spain and Switzerland they are monthly. In France, data cover the earnings of employees only. The Spanish data exclude people who work fewer than fifteen hours a week.

The observed differences in relative earnings between countries therefore reflect variations not only in wage rates but also in coverage, in the number of weeks worked per year and in hours worked per week. Since lower educational attainment is associated with fewer hours of work (in particular with part-time work) and with less stable employment (more likelihood of temporary employment or more susceptibility to unemployment over the course of a year), the relative earnings figures shown for higher educational attainment in the tables and charts will be greater than what would be observed from an examination of relative rates of pay. The observed differences in relative earnings of men and women within a country can likewise be affected by some of these factors.

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Table E5.1. **Relative earnings of 25 to 64 and 30 to 44 year-olds with income from employment (ISCED 3/4 = 100) by level of educational attainment and gender**

			Below upper secondary education		Tertiary-type B education		Tertiary-type A and advanced research programmes	
			ISCED 0/1/2		ISCED 5B		ISCED 5A/6	
			Ages 25-64	Ages 30-44	Ages 25-64	Ages 30-44	Ages 25-64	Ages 30-44
Australia	1997	Men	87	83	120	116	144	138
		Women	85	84	113	112	154	154
		M + W	79	75	103	101	136	131
Canada	1997	Men	83	81	110	112	146	143
		Women	74	69	117	118	164	165
		M + W	82	79	107	109	151	149
Czech Republic	1998	Men	75	77	176	181	178	176
		Women	72	76	127	124	172	176
		M + W	68	70	150	150	180	182
Denmark	1997	Men	86	86	124	121	139	139
		Women	88	88	119	115	136	144
		M + W	85	85	115	110	140	142
Finland	1996	Men	95	92	129	125	189	174
		Women	101	99	123	122	179	172
		M + W	97	96	121	117	186	173
France	1998	Men	88	88	130	137	176	175
		Women	80	81	132	138	161	168
		M + W	84	85	126	132	169	171
Germany	1997	Men	88	87	106	108	156	144
		Women	87	84	111	110	156	159
		M + W	81	82	108	106	163	153
Hungary	1998	Men	74	76	x(5A/6)	x(5A/6)	213	210
		Women	66	69	x(5A/6)	x(5A/6)	154	152
		M + W	68	70	x(5A/6)	x(5A/6)	179	173
Ireland	1997	Men	76	83	114	122	165	177
		Women	63	65	114	122	199	187
		M + W	76	80	117	122	183	184
Italy	1995	Men	73	77	x(5A/6)	x(5A/6)	173	161
		Women	76	77	x(5A/6)	x(5A/6)	129	133
		M + W	76	80	x(5A/6)	x(5A/6)	156	148
Netherlands	1996	Men	87	86	x(5A/6)	x(5A/6)	136	129
		Women	75	74	x(5A/6)	x(5A/6)	141	145
		M + W	84	84	x(5A/6)	x(5A/6)	137	132
New Zealand	1998	Men	82	82	x(5A/6)	x(5A/6)	148	126
		Women	69	76	x(5A/6)	x(5A/6)	143	146
		M + W	77	80	x(5A/6)	x(5A/6)	148	134
Norway	1997	Men	85	85	x(5A/6)	x(5A/6)	138	140
		Women	84	90	x(5A/6)	x(5A/6)	140	143
		M + W	85	87	x(5A/6)	x(5A/6)	138	138
Portugal	1997	Men	60	58	149	153	188	193
		Women	62	59	129	135	189	205
		M + W	62	59	139	144	192	201
Spain	1995	Men	74	73	98	103	171	158
		Women	61	61	78	86	151	156
		M + W	76	71	96	104	161	151
Sweden	1997	Men	88	88	x(5A/6)	x(5A/6)	135	135
		Women	89	87	x(5A/6)	x(5A/6)	125	121
		M + W	90	89	x(5A/6)	x(5A/6)	129	128
Switzerland	1998	Men	81	82	119	122	145	139
		Women	74	82	123	122	157	164
		M + W	74	79	137	140	162	156
United Kingdom	1998	Men	73	70	125	124	157	157
		Women	64	61	135	133	188	192
		M + W	64	63	125	125	168	172
United States	1998	Men	69	67	113	114	183	182
		Women	62	60	127	130	180	191
		M + W	70	68	116	116	184	184

Source: OECD Database. See Annex 3 for notes.

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Table E5.2 **Mean annual earnings of women as a percentage of mean annual earnings of men aged 30 to 44 and 55 to 64, by level of educational attainment**

		Below upper secondary education		Upper secondary and post-secondary non-tertiary education		Tertiary-type B		Tertiary-type A and advanced research programmes		All levels of education	
		ISCED 0/1/2		ISCED 3/4		5B		5A/6		Total	
		Ages 30-44	Ages 55-64	Ages 30-44	Ages 55-64	Ages 30-44	Ages 55-64	Ages 30-44	Ages 55-64	Ages 30-44	Ages 55-64
Australia	1997	60	55	59	54	57	59	66	57	61	56
Canada	1997	52	53	61	57	64	55	70	58	64	55
Czech Republic	1998	66	58	67	64	46	62	67	63	63	61
Denmark	1997	74	72	72	69	69	67	75	73	73	68
Finland	1996	77	80	72	79	70	76	71	70	73	73
France	1998	68	65	74	70	75	76	71	65	73	62
Germany	1997	60	52	63	53	64	68	69	59	62	48
Hungary	1998	77	81	85	107	x(5/A6)	x(5/A6)	61	74	78	89
Ireland	1997	64	67	78	85	78	78	94	90	81	83
Italy	1995	69	72	69	49	x(5/A6)	x(5/A6)	57	37	70	56
Netherlands	1996	47	42	54	46	x(5/A6)	x(5/A6)	61	48	56	43
New Zealand	1998	53	44	57	64	x(5/A6)	x(5/A6)	66	41	59	54
Norway	1997	64	66	60	63	x(5/A6)	x(5/A6)	61	64	62	61
Portugal	1997	73	71	72	70	63	56	76	70	73	68
Spain	1995	62	m	74	m	62	m	73	m	77	m
Sweden	1997	72	72	73	68	x(5/A6)	x(5/A6)	65	66	71	69
Switzerland	1998	54	44	53	47	54	54	63	51	52	41
United Kingdom	1998	45	45	51	59	55	58	62	62	52	53
United States	1998	53	52	59	57	67	61	62	44	62	49

Source: OECD Database. See Annex 3 for notes.

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F

STUDENT ACHIEVEMENT

International comparisons of student achievement have become an essential tool in assessing the performance of education systems. They increasingly serve as measures of accountability that inform key stakeholders in education – such as taxpayers, employers, educators, parents and students – on the effects of their investment in education.

The 1990s witnessed a steady growth in the number of international assessments and countries participating in them as well as a growing number of similar national activities – reflecting the desire in many countries for information on the actual learning of students.

In a world increasingly dominated by technology, mathematical knowledge and skills are central to the ability to compete in the global marketplace. Early success in mathematics is important, both because a firm foundation in basic principles is necessary before more complex materials can be mastered and because early success can keep young people interested in this and related fields of study. It is equally important to ensure that students continue to make progress as they advance from primary to secondary education. **Indicator F1** shows the relative standing of countries in mathematics achievement at both 4th and 8th grades. It also compares the progress that students in different countries make between the 4th and the 8th grade, highlighting cases where countries with poorer performance at the 4th grade are catching up, as well as those where the achievement gap is widening between countries.

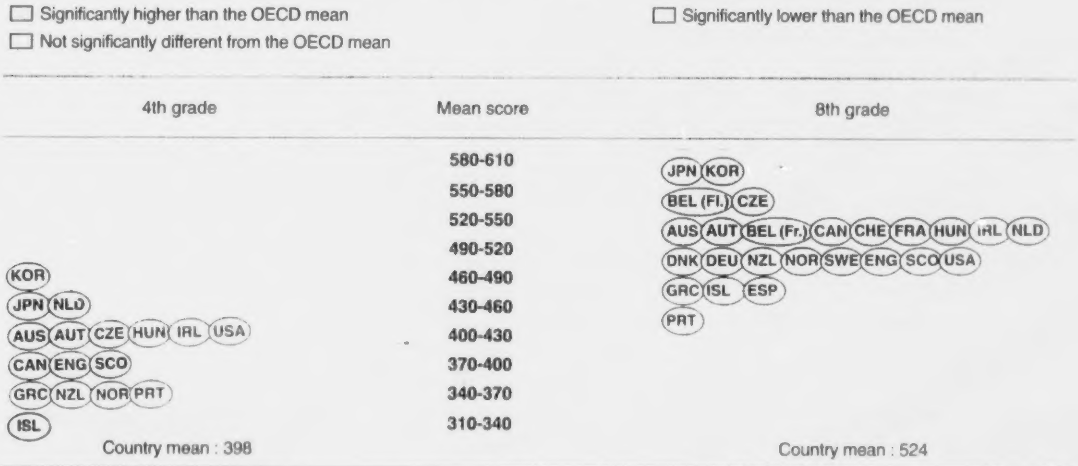
Education systems not only aim at uniformly high levels of academic achievement, but also seek to develop and support positive attitudes among students towards learning and achievement and to foster both the motivation and the ability of students to continue learning throughout life. **Indicator F2** reports on the attitudes of students toward science in relation to their achievement in science. **Indicator F3** explores what 4th- and 8th-grade girls and boys believe accounts for performance in mathematics and it explores the relationship of their beliefs to their actual mathematics achievement.

MATHEMATICS ACHIEVEMENT OF STUDENTS IN THE 4th AND 8th GRADES

- Wide differences between countries in mathematics achievement appear early on in children's schooling, and tend to increase as schooling progresses. The difference between mathematics achievement in Japan and Korea, on the one hand, and the OECD average, on the other, exceeds more than twice the typical progress in achievement over a school year.

- Most countries which perform well in mathematics at the 4th grade do so also at the 8th grade, which underlines the importance of early success. However, some countries with comparatively low performance at the 4th grade make up for some of the difference by the 8th grade, while others with good 4th grade results fall behind by the 8th grade.

Chart F1.1. **Mathematics performance at the 4th and 8th grades (1995)**



For more information, see Annex 3.
Source: International Association for the Evaluation of Education Achievement (IEA)/TIMSS.

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POLICY CONTEXT

This indicator shows the average mathematics achievement of students in the 4th and 8th grades.

International comparisons of student achievement have become an essential tool in assessing the performance of education systems. They can serve as measures of accountability that inform key stakeholders in education – such as taxpayers, employers, educators, parents and students – on the effects of their investment in education.

In a world increasingly dominated by technology, mathematical knowledge and skills are central to the ability to compete in the global marketplace. Early success in mathematics is important, both because a firm foundation in basic principles is necessary before more complex materials can be mastered, and because early success can keep young people interested in this and related fields of study. It is equally important to ensure that students continue to make progress as they advance from primary to secondary education. Indicator F1 shows the relative standing of countries in mathematics achievement at both the 4th and the 8th grades.

It also reflects the relative progress that students make between the two grades in different countries.

The indicator also compares the progress that students in different countries make between the 4th and the 8th grades, highlighting cases where countries with poorer performance at the 4th grade are making up for some of the difference, as well as those where the achievement gap is widening between the two grade levels.

It is useful to compare **Indicator F1** with Indicator F2 from the 1998 edition of *Education at a Glance*. This indicator provided a comparison of the distribution of student achievement at the 4th and 8th grades and shed light on the extent to which education systems and societies mitigate or reinforce early educational disparities between the two grades.

EVIDENCE AND EXPLANATIONS

Chart F1.1 and Table F1.1 compare the mean mathematics performance of countries for both 4th and 8th grades with the international average. Chart F1.1 indicates those countries with performances significantly above the OECD average and those with performances significantly below the OECD average (further details on the relative standings of countries are shown in the 1997 edition of *Education at a Glance*). The percentage difference in means between the two grades in Table F1.1 estimates the growth in achievement between the 4th and the 8th grade. It is calculated as the difference in average performance between the two grades relative to performance at the 4th grade.

Mean performance of countries at the 4th grade

Variation in mathematics achievement between countries is substantial.

In mathematics, Japanese and Korean 4th-grade students score significantly higher than those in all other participating countries (457 and 471 score points respectively). In fact, the average mathematics achievement of 4th-grade students in Japan and Korea is higher than the average achievement of 8th-grade students in Portugal (Table F1.1).

Fourth-grade students in the remaining countries can be classified into five groups: the Czech Republic and the Netherlands, with means of 428 and 438; Australia, Austria, Hungary, Ireland and the United States, with scores somewhat above the OECD average; Canada and Scotland, with scores a little below the OECD average; England, Greece, New Zealand and Norway, with scores around 365; and Iceland and Portugal, with scores of 338 and 340 (Table F1.1).

One way to gauge the magnitude of the observed differences between countries at the primary level is to compare them with the typical difference in achievement between the 3rd and 4th grades, an average difference of 63 points in mathematics in the OECD countries tested. The observed differences in scores between some countries are bigger than the average difference between the 3rd and 4th grades, which suggests that variation between countries in mathematics achievement is of considerable educational and practical importance.

Differences in achievement between the 4th and 8th grades are substantial when compared to the average gap between children one year apart in age.

Mean performance of countries in 8th grade

Japan and Korea maintain their high rankings at the 8th grade. The difference in mathematics achievement between Japan and Korea on the one hand, and the OECD average on the other exceeds more than twice the typical difference in achievement between students in the 7th and 8th grades in OECD countries (32 scale points). High achievement in mathematics is shown also by students in the Flemish Community of Belgium and the Czech Republic, whereas students in Portugal lag behind (Table F1.1). The average mathematics achievement score in most OECD countries is between 480 and 550 points on a scale that has an overall mean of 524 points and a standard deviation of somewhat less than 100 points.

Japan and Korea maintain their high standing at the 8th grade.

An examination of relative national performance leads to the more pertinent question of what influences student performance. What factors explain the patterns of performance in different countries, and are they amenable to policy intervention? Knowledge of the factors that influence successful performance will enable policy-makers to make informed choices about priorities. Success may, for example, be associated with student attitudes and perceptions, with teaching methods or with curricular emphases.

Knowing what influences successful student performance enables policy-makers to make informed choices about priorities.

There seems to be neither a strong nor a consistent relationship between the volume of resources invested nationally (Indicator B1) and student outcomes. This suggests that international variation cannot be explained merely in terms of financial or staff resources and that the search for improvement in school performance must extend to factors that lie beyond material inputs.

International variation in mathematics and science achievement cannot be explained in terms of financial or staff resources alone.

Growth in mathematics achievement between the 4th and 8th grades

Does the level of achievement in lower grades allow achievement later in school to be predicted? Chart F1.1 suggests that many countries maintain a similar ranking in mathematics between the 4th and the 8th grade. This may be an indication both of the importance of success in early school years and of the fact that similar factors of student success may operate at both grades.

Most countries which perform well in mathematics at the 4th grade also do so at the 8th grade, which underlines the importance of early success.

These comparisons are based on a synthetic cohort and do not show the progress of a specific group of students; rather, they show the difference in achievement between two different groups of students at the same point in time. Some of the differences observed could be caused by other factors, such as changes in curricular emphases and teaching methods at different grades.

Some of the countries with a comparatively low performance at the 4th grade make up for some of the difference by the 8th grade…

Iceland, New Zealand and Norway, whose 4th-grade students perform particularly poorly in mathematics, are among the countries with the highest gains over the four years. There are also countries with high performance in 4th-grade mathematics which succeed in extending their advantage through high gains over the four years – Japan and Korea in particular.

… while other countries have good 4th-grade results but fall behind by the 8th grade.

At the other end of the spectrum are countries, such as Ireland and the United States, which perform well at the 4th grade but which fall behind by the 8th grade. Some of the differences between countries may be explained by differences in curricular emphases at the respective grades.

DEFINITIONS

The achievement scores are based on tests administered as part of the Third International Mathematics and Science Study (TIMSS) that was undertaken by the International Association for the Evaluation of Educational Achievement (IEA) during the school year 1994/95. The target populations studied in this indicator refer to students in the higher of the two grades in which most 9- and 13-year-olds are enrolled. Conventionally, these grades are referred to as the "4th" and "8th" grades, since in most countries they refer to the fourth and eighth years of formal schooling. It should be noted that years of formal schooling vary from country to country and that chronological age does not necessarily mean that students have had the same amount of formal schooling. For example, students in Denmark, Norway and Sweden have had one year less (*i.e.* seven years) of formal schooling than most of their counterparts in the 8th grade, while students in England, Scotland and New Zealand have had one year more (*i.e.* nine years) of formal schooling (see Table F.1.1). Countries in Table F1.1 and Chart 1.1 marked with (3) or (4) met the IEA/TIMSS sampling standards only partially, while those marked with (1) or (2) did not meet the IEA/TIMSS sampling standards. Annex 3 in the 1997 edition of *Education at a Glance* gives further details.

For Table F1.1 and Chart 1.1, 4th-grade average achievement scores and their standard errors (with the exception of those used for the significance tests at the 4th grade) are adjusted for each country to fit the 8th-grade achievement scale. Fifteen of the items in mathematics (15 per cent) were included in the tests for both Population 1 (9-year-olds in grades 3 and 4) and Population 2 (13-year-olds in grades 7 and 8). The difference in performance in these items between the populations was used to estimate the change between the 4th and the 8th grade. The country means for the 4th grade transformed to the 8th-grade scale are shown in Table F1.1. The tests for Chart F1.1 on whether the 4th-grade country means are significantly different from the OECD mean are based on standard errors, which are not adjusted for the linkage between 4th and 8th grades.

The data are subject to sampling error, which sets a lower limit on the size of observed differences that can be considered statistically significant. The statistical tests used to compare country means were conducted using the Bonferroni adjustment for multiple comparisons at the 5 per cent significance level.

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The reporting of sub-national data for Belgium and the United Kingdom is based on data availability from the IEA and does not represent a policy decision by the OECD.

Table F1.1. **Mean mathematics achievement of students in 4th and 8th grades (1995)**

	4th grade				8th grade				Difference between the mean scores	Standard error of the difference
	Mean	Standard error	Years of formal schooling	Average age	Mean	Standard error	Years of formal schooling	Average age		
Australia[1, 2]	408	(8.4)	4 or 5	10.2	530	(4.0)	8 or 9	14.2	121	(9.3)
Austria[1, 2]	421	(8.4)	4	10.5	539	(3.0)	8	14.3	119	(9.0)
Belgium (Fl.)[3]	m	m	m	m	565	(5.7)	8	14.1	m	m
Belgium (Fr.)[2]	m	m	m	m	526	(3.4)	8	14.3	m	m
Canada	395	(8.5)	4	10.0	527	(2.4)	8	14.1	133	(8.8)
Czech Republic	428	(8.5)	4	10.4	564	(4.9)	8	14.4	135	(9.8)
Denmark[2]	m	m	m	m	502	(2.8)	7	13.9	m	m
France	m	m	m	m	538	(2.9)	8	14.3	m	m
Germany[2]	m	m	m	m	509	(4.5)	8	14.8	m	m
Greece[2]	356	(8.9)	4	9.6	484	(3.1)	8	13.6	128	(9.4)
Hungary[1]	410	(8.7)	4	10.4	537	(3.2)	8	14.3	127	(9.2)
Iceland	338	(8.3)	4	9.6	487	(4.5)	8	13.6	149	(9.5)
Ireland	412	(8.6)	4	10.3	527	(5.1)	8	14.4	116	(10.0)
Japan	457	(8.1)	4	10.4	605	(1.9)	8	14.4	148	(8.3)
Korea	471	(8.1)	4	10.3	607	(2.4)	8	14.2	137	(8.5)
Netherlands[1, 2]	438	(8.5)	4	10.3	541	(6.7)	8	14.3	103	(10.8)
New Zealand	362	(8.9)	4.5-5.5	10.0	508	(4.5)	8.5-9.5	14.0	146	(10.0)
Norway	365	(8.4)	3	9.9	503	(2.2)	7	13.9	138	(8.7)
Portugal	340	(8.6)	4	10.4	454	(2.5)	8	14.5	115	(8.9)
Spain	m	m	m	m	487	(2.0)	8	14.3	m	m
Sweden	m	m	m	m	519	(3.0)	7	13.9	m	m
Switzerland[3]	m	m	m	m	545	(2.8)	7 or 8	14.2	m	m
England[3, 4]	376	(8.5)	5	10.0	506	(2.6)	9	14.0	130	(8.9)
Scotland[2]	383	(8.7)	5	9.7	498	(5.5)	9	13.7	115	(10.3)
United States[3]	407	(8.4)	4	10.2	500	(4.6)	8	14.2	93	(9.6)
Country mean	**398**				**524**					

The country mean includes only those countries for which data are available.

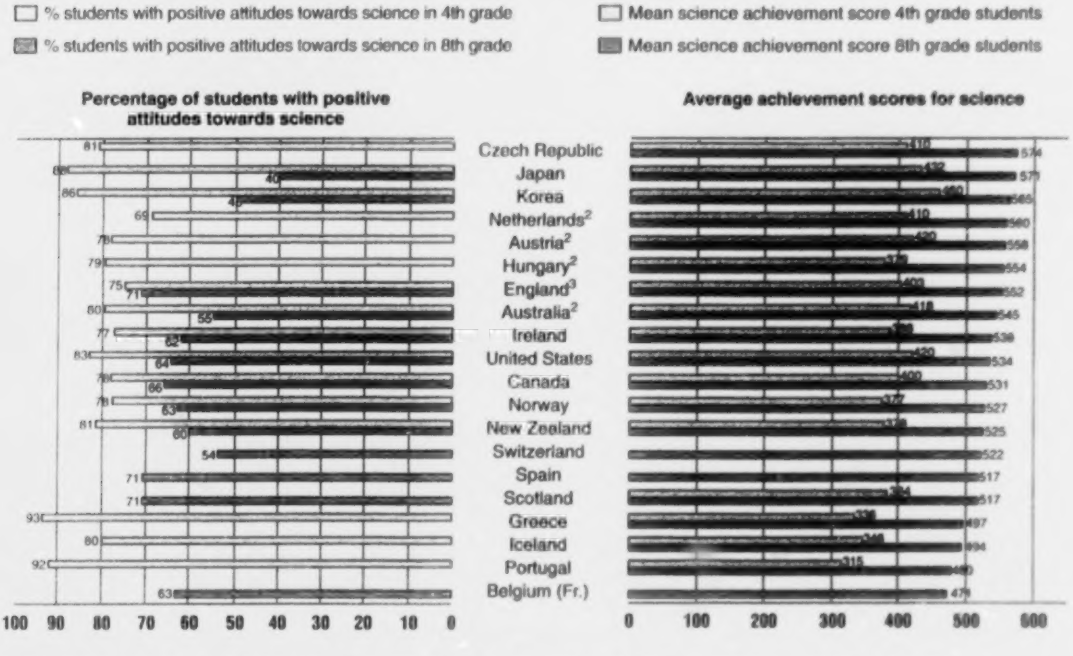
1. Countries did not meet TIMSS sampling requirements, 4th grade.
2. Countries did not meet TIMSS sampling requirements, 8th grade.
3. Countries met TIMSS sampling requirements only partially, 8th grade.
4. Countries met TIMSS sampling requirements only partially, 4th grade.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

DIFFERENCES IN STUDENTS' ATTITUDES TOWARDS SCIENCE IN THE 4th AND 8th GRADES

- Fourth-grade students generally have positive attitudes towards science. There is, however, a marked decline in positive attitudes as students progress through the education system, particularly in the two countries with the highest level of science achievement. While successful in raising levels of science achievement, education systems appear to find it more difficult to sustain the strong positive views and enthusiasm that young children display towards science.
- Those 4th-graders with the most positive attitudes towards science show the highest achievement levels, a relationship which is stronger among boys than among girls. Among older students, the relationship between attitudes and achievement is more varied and many students achieve well despite negative attitudes towards science.

Chart F2.1. **Percentage of students in 4th and 8th grades with positive attitudes towards science[1] and science achievement (1995)**



1. This includes "strongly positive" and "positive" attitudes. 2. Countries met TIMSS sampling requirements only partially.
3. Countries did not meet TIMSS sampling requirements.
Countries are ranked in descending order of the average achievement scores of 8th-graders.
Achievement scores are included for those countries where data are available for attitudes in 4th and/or 8th grades.
Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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POLICY CONTEXT

Education systems not only aim at instilling knowledge and skills in key curricular domains, but also seek to foster the capacity and the motivation of young adults to continue learning throughout life. In order to achieve this, students need to be able to manage their own learning - to set goals, to persevere, to monitor their progress and to adjust their learning strategies as necessary. In this context, positive attitudes towards learning and towards important subject domains are often considered an important prerequisite for lifelong learning. This indicator shows 4th- and 8th-grade students' attitudes towards science and the relationship between these attitudes and their achievement in science.

This indicator assesses the importance of students' attitudes towards science with respect to their achievement in science in the 4th and 8th grades.

EVIDENCE AND EXPLANATIONS

In all countries, two-thirds or more of 4th-graders report positive or strongly positive attitudes towards science (Chart F2.1). In Australia, the Czech Republic, Greece, Iceland, Japan, Korea, New Zealand, Portugal and the United States, the proportion is 80 per cent or more. While the picture is similar for both boys and girls in this age group, in 13 of the 16 countries for which data are available, girls show slightly more positive attitudes towards science than boys (an average difference of three percentage points) (see Table F2.2).

4th-grade students generally have positive attitudes towards science...

It is noteworthy, though, that attitudes towards science at the 8th-grade are markedly less positive than at the 4th grade in all nine countries for which data are available for both the 4th and the 8th grade (Chart F2.1).

... but attitudes are less positive as students progress through the education system...

In Japan and Korea, the two countries with both the highest level of science achievement at the 4th grade and the highest gains in student achievement between the 4th and the 8th grades, the proportion of 8th-graders with positive attitudes towards science is the lowest among the countries for which comparable data are available. While 88 per cent of Japanese and 86 per cent of Korean 4th-graders report positive attitudes towards science, only 40 per cent and 48 per cent respectively of 8th-graders do so. England, Scotland and Spain are the only countries in which 70 per cent or more of 8th-graders display positive attitudes towards science.

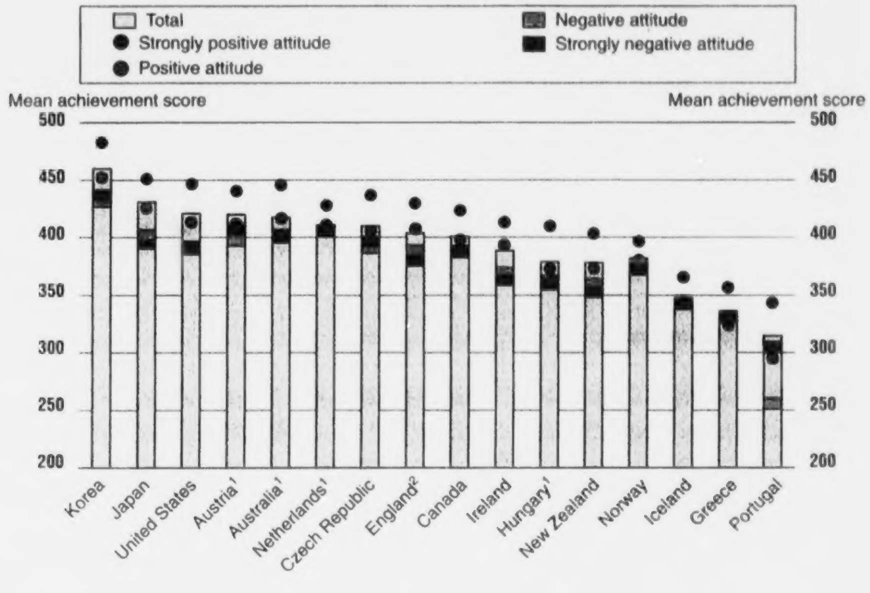
... particularly in the two countries with the highest level of science achievement.

While successful in raising levels of science achievement, education systems appear to find it more difficulty to sustain the positive views and enthusiasm that young children display towards science.

Not surprisingly, the highest average achievement among 4th-grade students in all countries correlates strongly with those students, both boys and girls, who have the most positive attitudes towards science. On average across countries, the achievement of 4th-graders with strongly positive attitudes towards science is 34 score points higher than the achievement of students with negative attitudes towards science, which corresponds to about half the typical progress made by students over the course of a school year (Chart F2.2).

Those 4th-graders with the most positive attitudes towards science show the highest achievement levels...

Chart F2.2. **Mean science achievement scores of 4th-grade students overall and by different levels of attitude towards science (1995)**



1. Countries met TIMSS sampling requirements only partially.
2. Countries did not meet TIMSS sampling requirements.

Source: International Association for the Evaluation of Educational achievement (IEA)/TIMSS.

... a relationship which is stronger among boys than among girls.

The relationship between attitudes and achievement in science in 4th grade is, however, stronger among boys than among girls (Table F2.2).

Among older students, many students achieve well despite negative attitudes towards science.

Unlike the 4th-grade students, those 8th-grade students who report positive attitudes towards science often have lower achievement scores than those students who report a negative attitude towards science and higher achievement rates. Interestingly, the mean achievement rates of 8th-graders who report strongly negative attitudes to science is 36 points higher that of those who report strongly positive attitudes. This suggests that factors other than attitude are more important determinants of achievement in the 8th-grade. By contrast, the attitude towards science may play a more important role in achievement in the 4th grade (Table F2.1).

DEFINITIONS

The achievement scores and contextual information for this indicator are based on tests and surveys administered as part of the Third International Mathematics and Science Study (TIMSS) that was undertaken by the International Association for the Evaluation of Educational Achievement (IEA) during the school year 1994-95. The target population studied in this indicator refers to students in the upper grade of the two grades in which most 9-year-olds are enrolled. Conventionally, this grade is referred to as the "4th" grade because in most countries it is the fourth year of formal schooling. Countries marked with (1) met the IEA/TIMSS sampling standards only partially. Countries marked with (2) did not meet the IEA/TIMSS sampling standards. The reporting of data on a sub-national level for some countries is based on data available from the IEA and does not represent a policy decision by the OECD.

Table F2.1 shows the percentages of 4th- and 8th-grade students in each of the four categories of attitudes towards science: strongly positive, positive, negative, and strongly negative. It also shows the average science achievement scores for students in the corresponding response category.

Table F2.2 shows the percentages of 4th-grade students, broken down by gender, in each of the four categories of attitudes toward sciences: strongly positive, positive, negative, and strongly negative. It also shows the average science achievement scores for students in the corresponding response category.

Chart F2.1 shows the percentages of 4th- and 8th-grades students with positive attitudes towards science and their average achievement scores. "Positive attitudes" combines the percentage for "strongly positive" and "positive" attitudes reported for each country in Chart F2.1.

Chart F2.2 shows each country's mean achievement scores for each of the four groups of 4th-grade students with strongly positive, positive, negative and strongly negative attitudes.

Data on students' attitudes towards science come from the TIMSS student context questionnaires, which asks students to rate the following statements on a four-point scale ("strongly agree", "agree", "disagree", or "strongly disagree"): I like science, I enjoy learning science, Science is boring (reverse scored).

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Table F2.1. **Mean science achievement of 4th- and 8th-grade students' and attitudes toward science (1995)**

4th grade

	Total	Strongly positive		Positive		Negative		Strongly negative	
	Mean	Per cent	Mean	Per cent	Mean	Per cent	Mean	Per cent	Mean
Australia[1]	417	34	445	46	416	14	402	7	400
Austria[1]	420	44	440	34	411	16	398	6	408
Canada	401	33	423	45	398	15	388	7	388
Czech Republic	410	27	437	54	405	15	392	4	396
England[2]	404	33	430	42	407	13	389	11	380
Greece	336	60	356	33	324	4	331	2	331
Hungary[1]	379	31	410	48	372	16	363	5	359
Iceland	345	39	365	41	344	13	343	7	343
Ireland	389	30	413	47	393	17	370	6	363
Japan	431	35	451	53	425	11	403	1	395
Korea	460	39	483	47	452	11	432	3	437
Netherlands[1]	410	27	428	42	411	20	406	11	406
New Zealand	378	40	403	41	373	12	360	7	352
Norway	377	35	396	43	380	17	378	6	372
Portugal	314	51	343	41	294	4	256	4	304
United States	421	44	446	39	413	13	393	4	390
Country mean	**393**	**38**	**417**	**44**	**389**	**13**	**375**	**6**	**376**

8th grade

	Total	Strongly positive		Positive		Negative		Strongly negative	
	Mean	Per cent	Mean	Per cent	Mean	Per cent	Mean	Per cent	Mean
Australia[1]	545	0	474	54	539	44	557	1	552
Belgium (Fr.)	471	0	481	63	465	36	464	1	366
Canada	531	1	502	65	525	34	544	0	532
England[2]	552	1	428	70	545	28	573	1	546
Ireland	538	1	490	61	533	37	552	1	508
Japan	571	0	528	40	563	60	577	1	543
Korea	565	1	497	48	553	52	579	0	442
New Zealand	525	0	425	59	515	39	544	1	513
Norway	527	0	467	62	520	36	541	1	553
Scotland	517	1	414	70	516	29	530	1	488
Spain	517	1	471	70	513	29	529	0	542
Switzerland	522	0	502	53	512	46	535	1	522
United States	534	1	489	64	532	35	545	1	531
Country mean	**532**	**1**	**475**	**60**	**526**	**39**	**544**	**1**	**511**

[1] Countries met TIMSS sampling requirements only partially.

[2] Countries did not meet TIMSS sampling requirements.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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Table F2.2. Mean science achievement of 4th-grade students and attitudes towards science, by gender (1995)[3]

		Strongly positive		Positive		Negative		Strongly negative	
		Per cent	Mean	Per cent	Mean	Per cent	Mean	Per cent	Mean
Australia[1]	Boys	39	456	40	424	14	407	7	416
	Girls	28	431	52	410	14	397	6	380
Austria[1]	Boys	49	449	31	423	15	401	5	410
	Girls	39	429	37	401	17	396	7	409
Canada	Boys	36	429	40	400	15	388	9	390
	Girls	30	415	50	395	14	384	6	380
Czech Republic	Boys	29	447	49	418	18	402	5	411
	Girls	25	426	59	395	13	379	3	376
England[2]	Boys	36	442	37	404	13	384	14	393
	Girls	30	414	47	410	14	394	9	361
Greece	Boys	60	364	33	324	5	332	2	321
	Girls	60	349	33	324	4	331	2	339
Hungary[1]	Boys	33	424	46	375	16	363	5	374
	Girls	29	392	51	370	15	363	5	344
Iceland	Boys	35	378	39	361	18	344	8	363
	Girls	43	356	43	328	8	341	6	316
Ireland	Boys	29	420	44	398	20	373	7	370
	Girls	30	406	51	389	15	365	4	350
Japan	Boys	42	459	48	434	9	397	1	379
	Girls	29	439	58	418	13	407	1	414
Korea	Boys	45	492	41	458	11	441	3	446
	Girls	33	469	53	448	11	424	3	427
Netherlands[1]	Boys	27	442	40	426	20	426	12	416
	Girls	26	412	44	397	21	386	10	393
New Zealand	Boys	43	406	37	358	13	360	8	349
	Girls	37	400	46	384	11	360	5	357
Norway	Boys	36	398	41	383	17	385	6	393
	Girls	35	392	44	375	16	367	5	344
Portugal	Boys	54	343	38	298	4	250	4	321
	Girls	49	343	43	291	4	264	4	288
United States	Boys	47	459	36	412	13	395	4	392
	Girls	41	433	42	414	13	391	4	387
Country mean	**Boys**	**44**	**453**	**39**	**417**	**12**	**396**	**5**	**395**
	Girls	**36**	**429**	**48**	**412**	**13**	**394**	**4**	**383**

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1 Countries met TIMSS sampling requirements only partially

2 Countries did not meet TIMSS sampling requirements

3 For table of standard errors see Annex 3

Source International Association for the Evaluation of Educational Achievement (IEA)/TIMSS

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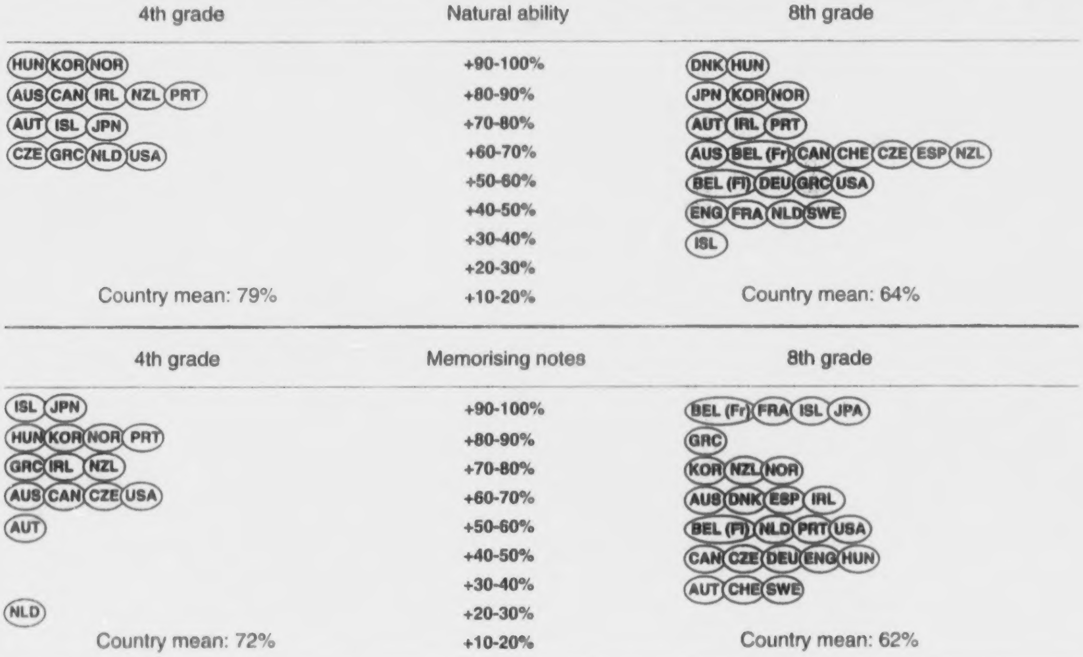
4th- AND 8th-GRADE STUDENTS' BELIEFS ABOUT PERFORMING WELL IN MATHEMATICS

- A majority of 4th-grade students in all countries agree that to do well in mathematics, one needs natural ability. However, those who believe so tend to have lower achievement scores.
- With one exception, between 58 and 93 per cent of students in the 4th grade in OECD countries believe that memorisation of textbooks or notes is important.

Chart F3.1. **Percentage of students who agree that natural ability and memorisation are important to do well in mathematics (1995)**



For more information, see Annex 3.
Source: International Association for the Evaluation of Education Achievement (IEA)/TIMSS.

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POLICY CONTEXT

Research has long explored the relationship of external factors – for example, school or family resources – to student achievement. Policy-makers are, however, increasingly looking also at variables such as what students believe about themselves or about school, as possible explanatory factors in achievement. This growing interest is demonstrated by the movement to explore cross-curricular competencies in OECD countries. For instance, the OECD's Programme for International Student Assessment (PISA) is collecting data on students' preferred learning styles, their motivational strategies, and their "self-concept", for use as context and explanatory variables.

This indicator examines 4th- and 8th-grade students' beliefs about what it takes to perform well in mathematics.

Indicator F3 explores what students in OECD countries believe contributes to good performance in mathematics, both overall and by gender. Furthermore, this indicator examines the relationship between students' beliefs and their achievement in mathematics.

EVIDENCE AND EXPLANATIONS

The context questionnaires of the Third International Mathematics and Science Study asked students to use a four-point scale to rate to what degree they agree or disagree that *i)* natural ability, *ii)* good luck, *iii)* hard work, and *iv)* memorisation of notes are important in order to do well in mathematics. Overall, the largest percentage of students agree that to do well in mathematics, hard work is needed. Over half of all students also think that natural ability and memorising the textbook or notes are important for success in mathematics. The smallest percentage of students think that good luck is necessary to perform well (Table F3.1).

Natural ability

Knowing whether students believe that natural ability promotes success in mathematics is important because beliefs can affect students' effort and persistence. For instance, if students do not believe that they have control over their success in mathematics, but believe that it is controlled by an innate characteristic such as natural ability, it is likely that they will put less effort into learning. A majority of 4th-grade students in all countries agree that to do well in mathematics, one needs natural ability. The percentage of students strongly agreeing with this statement ranges from 61 per cent in the Czech Republic to 96 per cent in Hungary. The pattern is similar for boys and girls, with statistically significant differences between the genders in only six countries.

A majority of 4th-grade students in all countries agree that to do well in mathematics, one needs natural ability...

In all but two countries, the Czech Republic and Japan, the percentage of students agreeing that natural ability is important for success in mathematics is smaller at the 8th-grade than at the 4th grade.

On average across countries for which data are available, 64 per cent of students in the 8th-grade agree that natural ability is important, compared with 79 per cent in the 4th grade. Gender differences, are, however, more pronounced at the 8th grade than at the 4th grade. In 16 out of 24 countries gender differences are statistically significant and in 14 out of these 16 countries the percentage of boys agreeing that natural ability is important is higher than that of girls (Table F3.1).

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… but those who do believe so tend to have lower achievement scores.

At the 4th grade, while many more students agree than disagree that natural ability is important for success in mathematics, with the exception of Hungary those who disagree that natural ability is important have a higher average achievement than those who agree. A similar pattern emerges at the 8th grade although there is a much greater spread of agreement between countries (6 to 63 per cent of countries disagree and between 37 and 95 per cent of countries agree that natural ability is important for success in mathematics). In most countries, students who disagree outperform the students who agree (Table F3.2). Achievement scores show much greater variation when considered by gender. Among 4th-grade students, for example, five countries out of 15 report higher achievement scores for boys who *agree* that natural ability is important in mathematics while only one country reports higher average achievement scores for girls who agree with this statement. At the 8th grade, of the 24 countries included in this comparison, seven report higher achievement scores for boys who agree that natural ability is important, while 12 countries report higher scores for girls who agree with this statement (see Annex 3).

Hard work

In every country, between 71 and 98 per cent of students at both grade levels attribute good performance in mathematics to hard work, but patterns differ between the genders.

Hard work is something that students can control. At both 4th and 8th grades, an average of 88 per cent of students agree that hard work is important to do well in mathematics (Table F3.1). Between 71 and 98 per cent of students in both grades in every participating OECD country attribute good performance in mathematics to hard work. Response patterns do, however, differ between the genders. At the 4th grade, in ten countries, the percentage of girls who agree that hard work is important is statistically significantly higher than that of their male counterparts. At the 8th grade, differences are statistically significant in 15 countries (Table F3.1).

In no country is the percentage of boys who agree that hard work is important significantly higher than that of girls.

Relating these beliefs to actual achievement does not yield a clear pattern at the 4th grade, although 13 out of the 15 countries for which data are shown report higher achievement levels for those 8th-grade students who *disagree* that hard work is important to do well in mathematics (Table F3.2). A similar situation occurs at both grades when achievement scores are broken down by gender, with achievement scores for both boys and girls displaying no pattern at the 4th grade. Higher achievement scores are reported equally for both boys and girls in the 8th grade who *disagree* with the statement (see Annex 3).

Memorisation of textbooks or notes

With one exception, between 58 and 93 per cent of students in the 4th grade in OECD countries believe that memorisation of textbooks or notes is important.

Whether students believe that memorisation of textbooks or notes is important may simply reflect the learning culture of a particular country. However, like the previous category, the data on memorisation may give an indication of whether students believe their success in mathematics is under their own control. With the exception of the Netherlands, between 58 and 93 per cent of students in the 4th grade in OECD countries believe that memorisation of the textbook or notes is important to do well in mathematics (Table F3.1). In the Netherlands, only 25 per cent of 4th-grade students (and statistically significantly more boys than girls) believe so. In Ireland, Japan, and Korea, girls are significantly more likely to agree that memorisation is important than are their male counterparts (Table F3.1).

At the 8th grade, overall, students are less likely to agree that memorisation is important. However, boys in 13 countries are reported to be significantly more likely than girls to have this belief (Table F3.1).

Good luck

Students are more likely to equate success in mathematics with luck in the 4th grade than in the 8th grade.

Students cannot control good luck any more than natural ability. Therefore, students who believe that luck is important for success may be less likely to do the work necessary to succeed in mathematics. Or, perhaps students who believe that good luck is important to success are those who perform poorly for reasons that they perceive as bad luck. On average, students are more likely to equate success in mathematics with luck in the 4th grade than in the 8th grade. In every country except Japan and Korea, a smaller percentage of 8th-grade and 4th-grade students agree with this statement. At the 4th grade, Canada, Greece, the Netherlands and the United States are the only countries in which a majority of students *disagree* with this statement, whereas at the 8th grade, only four out of the 24 countries *agree* with this statement. However, the percentage of students agreeing with this statement varies from 28 per cent in the Netherlands to 75 per cent in Hungary at the 4th grade, and from 19 per cent in Norway to 63 per cent in Korea at the 8th grade (Table F3.1).

At the 4th grade, in Australia, Iceland, Ireland, and Norway, girls are significantly more likely to agree with the statement than their male counterparts, whereas boys are more likely to agree with this statement in Japan and Korea. By the 8th grade, students are less likely to perceive good luck as important for success in mathematics but in eight countries, boys are significantly more likely than girls to believe that good luck is important. In all countries, at both the 4th and the 8th grade, those students who do not attribute success in mathematics to good luck score significantly higher than those who do (see Annex 3).

■ DEFINITIONS

The achievement scores and contextual information are based on tests and surveys administered as part of the Third International Mathematics and Science Study that was undertaken by the International Association for the Evaluation of Educational Achievement (IEA/TIMSS) during the school year 1994-1995. The target populations studied in this indicator refer to students in the upper grades of the two grades in which most 9- and 13-year-olds are enrolled. Conventionally, these grades are referred to as the "4th" and "8th" grades, since in most countries they refer to the fourth and eighth years of formal schooling. Countries marked with (1) met the IEA/TIMSS sampling standards only partially. Countries marked with (2) did not meet the IEA/TIMSS sampling standards. The reporting of data on a sub-national level for some countries is based on data available from the IEA and does not represent a policy decision by the OECD.

Table F3.1 shows the percentage of 4th- and 8th-grade students who agree with each of the four statements (below), and reveals significant gender differences between groups.

Table F3.2 illustrates the relationship between the percentage of students who agree and disagree that natural ability and hard work are important in order to do well in mathematics, with average achievement scores for these groups at the 4th and 8th grades. Mean mathematics achievement scores for

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students in both grades who agree and disagree that natural ability is important to do well in mathematics *by gender* can be found in Annex 3.

Chart F3.1 shows the percentages of 4th- and 8th-grade students who agree that natural ability and memorisation are important to do well in mathematics.

Data on students' beliefs in mathematics come from the student context questionnaires, which asks students to rate the following statements on a four-point scale ("strongly agree", "agree", "disagree", or "strongly disagree"): To do well in mathematics, you need lots of natural ability, to do well in mathematics, you need good luck, to do well in mathematics, you need lots of hard work studying at home, to do well in mathematics, you need to memorise the textbook or notes.

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Table F3.1. **Percentage of students who agree that natural ability, good luck, hard work, and memorisation of textbooks or notes are important to do well in mathematics (1995)**

	Per cent of students responding "agree" or "strongly agree"			
	Natural ability	Good luck	Hard work	Memorising textbooks or notes
	***a)* 4th grade**			
Australia[1]	85	59g	84g	68
Austria[1]	72b	54	83	58
Canada	81	49	90g	62
Czech Republic	61	68	87g	61
Greece	62b	48	87	73
Hungary[1]	96g	75	88g	82
Iceland	79	63g	90g	92
Ireland	87	65g	91g	72g
Japan	79	53b	91g	93g
Korea	90g	62b	95g	84g
Netherlands[1]	64	28	77	25b
New Zealand	84g	64	87	73
Norway	93	58g	89	81
Portugal	86	66	95g	80
United States	62b	46	93g	69
Country mean	**79**	**57**	**88**	**72**
	***b)* 8th grade**			
Australia[2]	66b	31	92g	67b
Austria[2]	70	27	78	39
Belgium (Fl.)[1]	58	22	85	51b
Belgium (Fr.)[2]	69b	23	93g	93
Canada	61b	26g	87g	42b
Czech Republic	62	57g	81g	41
Denmark[2]	90b	28	87g	61b
England[1]	45b	23b	93g	49b
France	40b	21	90g	95
Germany[2]	59	25	76g	47b
Greece[2]	54b	26	95	84
Hungary	95	56b	79	47
Iceland	37b	24b	92	94
Ireland	72	31b	95g	69b
Japan	82g	59b	96g	92
Korea	86g	63g	98	73
Netherlands[2]	44b	23	89g	53b
New Zealand	62b	27	92g	72
Norway	86b	19	92g	74b
Portugal	72	39	97g	56b
Spain	66	35b	89	60
Sweden	48b	24b	83	33b
Switzerland[1]	60b	22	71	36b
United States[1]	50b	32b	90g	59b
Country mean	**64**	**32**	**88**	**62**

[1] Countries met TIMSS sampling requirements only partially

[2] Countries did not meet TIMSS sampling requirements.

b = indicates that the percentage of boys agreeing was significantly higher than that of girls.

g = indicates that the percentage of girls agreeing was significantly higher than that of boys.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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Table F3.2. **Relationship between percentage of students who agree and disagree that natural ability and hard work are important to do well in mathematics and average achievement at the 4th and 8th grades (1995)**

	Natural ability is important 4th grade				Natural ability is important 8th grade			
	Disagree	Disagree mean achievement	Agree	Agree mean achievement	Disagree	Disagree mean achievement	Agree	Agree mean achievement
Australia[1, 3]	15	407	85	401	34	540	66	528
Austria[1, 3]	28	416	72	414	30	524	70	546
Canada	19	398	81	380	39	536	61	525
Czech Republic	39	437	61	419	39	563	62	565
Greece[1]	38	352	62	326	46	487	54	485
Hungary[3]	4	358	96	404	6	535	95	539
Iceland	21	339	79	303	63	502	37	469
Ireland	13	409	87	405	28	538	72	527
Japan	21	472	79	457	18	618	82	602
Korea	10	488	90	478	14	607	86	607
Netherlands[1, 3]	36	447	64	435	56	541	44	542
New Zealand	16	355	84	340	38	521	62	501
Norway	7	346	93	346	14	508	86	504
Portugal	14	316	86	312	28	465	72	452
United States[2]	39	421	62	382	50	509	50	493
Country mean	**21**	**397**	**79**	**387**	**33**	**533**	**67**	**526**

	Hard work is important 4th grade				Hard work is important 8th grade			
	Disagree	Disagree mean achievement	Agree	Agree mean achievement	Disgree	Disagree mean achievement	Agree	Agree mean achievement
Australia[1, 3]	16	381	84	405	8	517	92	533
Austria[1, 3]	17	433	83	411	22	559	78	534
Canada	10	358	90	385	13	560	87	524
Czech Republic	13	470	87	419	19	608	81	554
Greece[1]	13	308	87	341	5	509	95	483
Hungary[3]	12	418	88	400	21	570	79	530
Iceland	10	304	90	311	8	501	92	487
Ireland	9	389	91	406	5	516	95	530
Japan	9	423	91	465	4	606	96	605
Korea	5	437	95	481	2	557	98	608
Netherlands[1, 3]	23	457	77	434	11	561	89	539
New Zealand	14	333	87	343	8	533	92	506
Norway	11	352	89	344	8	508	92	503
Portugal	5	250	95	315	3	464	97	454
United States[2]	7	364	93	399	10	507	90	500
Country mean	**12**	**378**	**88**	**390**	**10**	**538**	**90**	**526**

Note: Data and means are included for countries where data are available at both levels of education.
Mean achievement is the mean of the achievement for boys and girls by agreement or disagreement for each of the two categories of beliefs about what is important to do well in mathematics: natural ability and hard work. See Annex 3 for breakdowns of achievement scores by gender.

1. Countries did not meet TIMSS sampling requirements, 8th grade.
2. Countries met TIMSS sampling requirements only partially, 8th grade.
3. Countries met TIMSS sampling requirements only partially, 4th grade.

Source: International Association for the Evaluation of Educational Achievement (IEA)/TIMSS.

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Annex 1
TYPICAL GRADUATION AGES

The typical graduation age is the age at the end of the last school/academic year of the corresponding level and programme when the degree is obtained. The typical age is based on the assumption of full-time attendance in the regular education system without grade repetition. (Note that at some levels of education the term "graduation age" may not translate literally and is used here purely as a convention.)

Table X1.1*a*. **Typical graduation ages at upper secondary level**

	Programme orientation		Educational/Labour Market Destination			
	General programmes	Pre-vocational or vocational programmes	ISCED 3A programmes	ISCED 3B programmes	ISCED 3C short programmes	ISCED 3C long programmes
Australia	m	m	17	m	m	m
Austria	18	18	18	18	15	a
Belgium (Fl.)	18-19	18-19	18-19	a	18-19	18-19
Canada	m	m	17-18	a	m	m
Czech Republic	19	19	19	19	a	18
Finland	19	18-19	19	a	a	a
France	18-19	17-20	18-19	19-20	18-21	17-20
Germany	19	19	19	19	a	a
Greece	18	17-18	18	a	a	17-18
Hungary	18-20	16-17	18-20	20-22	18	16-17
Iceland	20	20	20	19	18	20
Ireland	18	18	18	a	a	18
Italy	19	19	19	19	a	17
Japan	18	16-18	18	18	16	16
Korea	17-18	17-18	17-18	17-18	17-18	a
Luxembourg	19-20	18-20	19-20	19-20	18-19	18-19
Mexico	18	19	18	a	19	19
Netherlands	17-18	18-20	17-18	a	18-20	18-20
New Zealand	17	17-20	17	17-20	17-20	17-20
Norway	18-19	18-19	18-19	a	18-19	16-18
Poland	18-19	18-19	19	a	18	a
Spain	18	16-18	18	a	16-18	18
Sweden	19	19	19	a	a	19
Switzerland	m	m	18-20	18-20	17-19	17-19
Turkey	17-19	17-19	17-19	a	17-18	17-18
United States	18	a	18	a	a	a

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Table XI.1b. **Typical graduation ages at post-secondary non-tertiary level**

	Programme orientation		Educational/Labour Market Destination		
	General programmes	Pre-vocational or vocational programmes	ISCED 4A programmes	ISCED 4B programmes	ISCED 4C programmes
Austria	a	19	19	19	20
Belgium (Fl.)	19-20	19-20	19-20	a	19-20
Canada	17-25	17-25	17-25	17-25	17-25
Czech Republic	21	21	21	21	21
Finland	a	25-29	a	a	25-29
France	18-21	18-21	18-21	a	19-21
Germany	22	22	22	22	a
Greece	a	19-20	a	a	19-20
Hungary	20-22	19-22	20-22	a	19-22
Iceland	a	21	a	a	21
Ireland	a	19	a	a	19
Italy	a	20	a	a	20
Japan	19	19	19	19	19
Korea	a	a	a	a	a
Luxembourg	a	23	a	a	23
Mexico	a	a	a	a	a
Netherlands	a	18-20	a	a	18-20
New Zealand	18-22	18-22	18-22	18-22	18-22
Norway	a	20-25	a	a	20-25
Poland	a	20-21	a	20-21	a
Spain	a	19	19	19	a
Switzerland	19-21	21-23	19-21	21-23	a
Turkey	a	a	a	a	a
United States	a	20	a	a	20

Table XI.1c. **Typical graduation ages at tertiary level**

	Tertiary-type B (ISCED 5B)					Tertiary-type A (ISCED 5A)					Advanced research programmes (ISCED 6)
	1st qualification			2nd qualification		1st degree			2nd degree		
	Medium duration	Long duration	Very long duration	Long duration	Very long duration	Medium duration	Long duration	Very long duration	Long duration	Very long duration	
Australia	m	m	m	m	m	20	a	a	22-23	a	25-29
Austria	20	21	a	23	24	22	23	a	a	25	25
Belgium (Fl.)	a	21-23	a	a	a	22-25	22-25	24-26	22-25	a	25-29
Czech Republic	21	22	a	22	a	22	25	a	25	a	27
Finland	21-22	a	a	a	a	24	a	a	26	a	29
France	20-21	a	a	a	a	21-22	23-24	25	23-24	a	25-26
Germany	21	22	a	a	a	25	26	a	a	a	28
Hungary	m	m	m	m	m	21-22	23-24	a	30	30	27
Iceland	22	24	25	a	a	23	25	27	25	27	29
Ireland	20	21	a	21	a	22	23	24	24	25	27
Italy	a	22-23	a	a	a	22	23-25	a	23-25	25-27	27-29
Japan	20	21	23	a	a	22	23	a	24	a	22
Korea	20	21-22	a	24	a	21-22	a	23-24	24	a	26
Luxembourg	22	22	a	a	a	a	a	a	a	a	a
Mexico	m	a	a	a	a	22-23	a	a	m	m	29
Netherlands	19-20	19-20	a	a	a	22-23	22-24	25-26	23-25	23-25	25
New Zealand	19-24	19-24	a	19-24	a	21-22	22-25	23-25	22-25	a	26-29
Norway	20-22	a	a	a	a	20-22	22-25	25-26	22-25	25-26	29
Poland	22-23	a	a	a	a	22-24	24-25	a	25	a	28
Portugal	a	21-22	22-23	a	a	20-24	20-24	a	23-24	26-27	27-29
Spain	20	a	a	a	a	21-23	23-24	a	23-24	a	30-34
Sweden	21-22	a	a	a	a	22-23	24-25	24-26	27	a	29
Switzerland	m	m	m	m	m	23-26	23-26	28	a	24-26	29
Turkey	19	21	a	a	a	21	22	23	a	23-28	26
United Kingdom	20-22	21-23	22-24	a	a	21	23	24	24	25	24-25
United States	20	a	a	a	a	21	a	a	23	25	28

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Table X1.2. **School years and financial years as used for the calculation of the indicators**

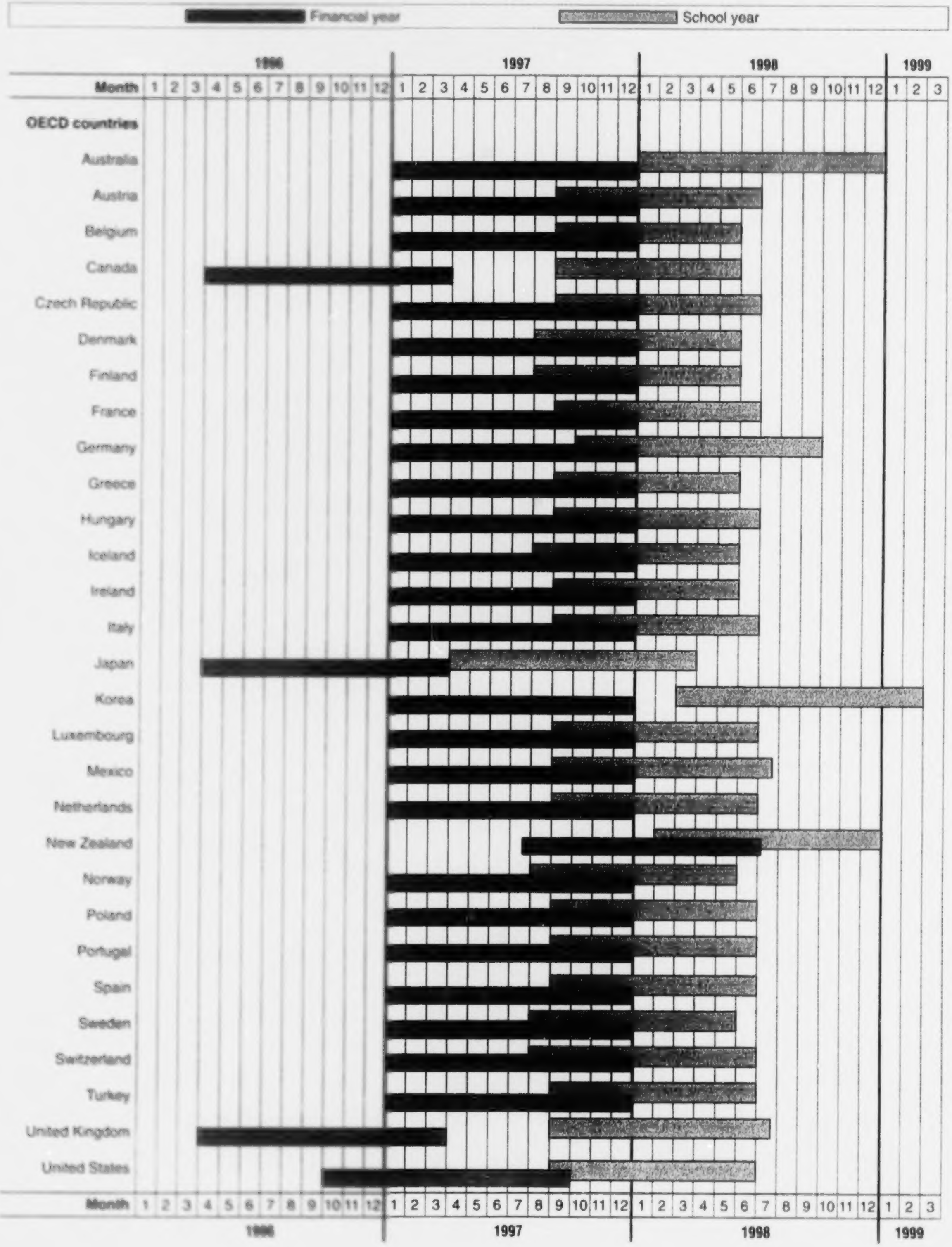

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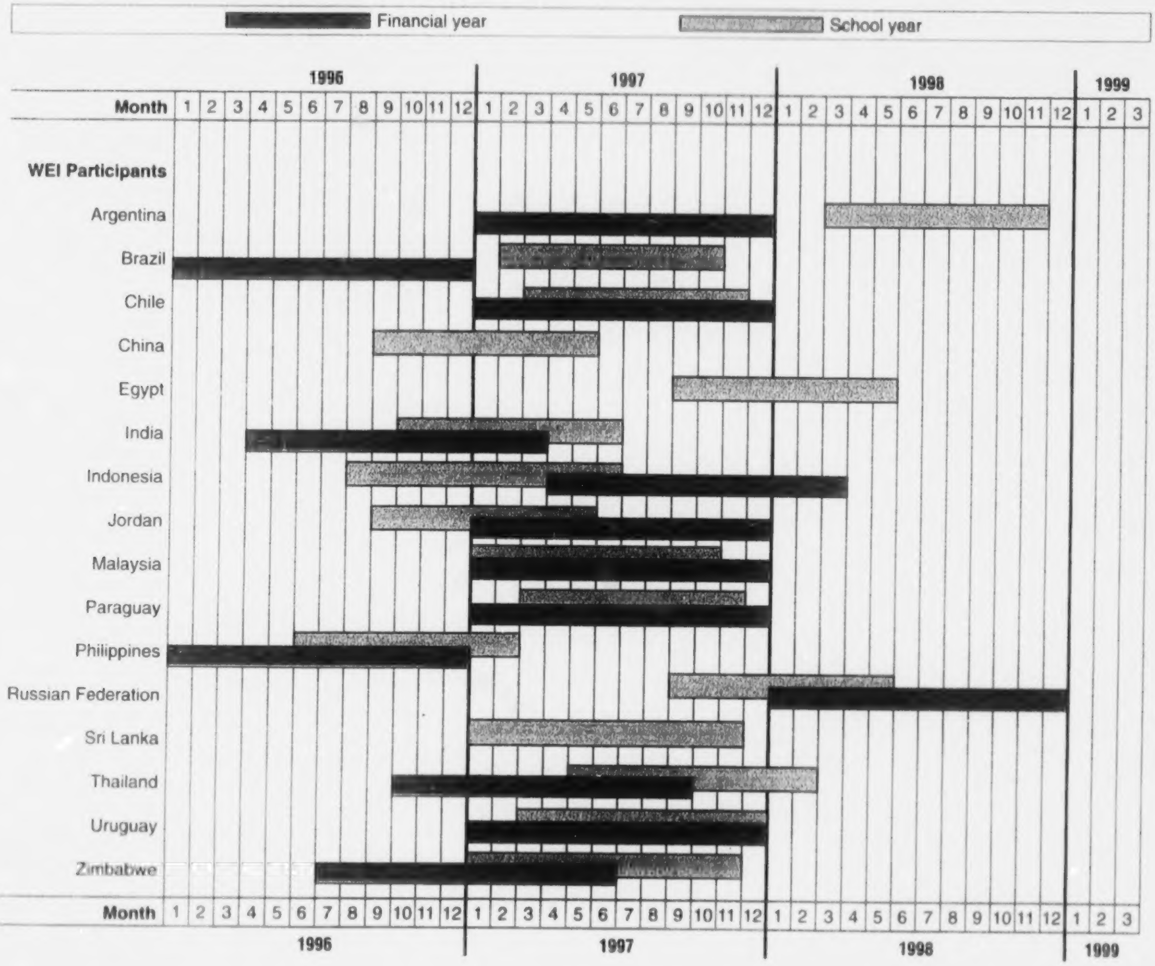
Table X1.2. **School years and financial years as used for the calculation of the indicators** *(cont.)*



Source: OECD.

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Annex 2
BASIC REFERENCE STATISTICS

Table X2.1. **Overview of the economic context using basic variables (reference period: calendar year 1997, 1997 current prices)**

	Total public expenditure as a percentage of GDP	GDP per capita (in equivalent US dollars converted using PPPs)	Annualised change in GDP per capita over the period 1990-1997 (1990 = 100) (1997 constant US dollars)	Ratio of gross average earnings of full time employees (90th percentile/ 10th percentile)	Unemployment rates of 25-64 year-olds (1998)[1]	Labour force participation rates of 25-64 year-olds (1998)[1]
Australia	36.7	22 582	117	2.9	6.3	75.4
Austria	m	23 054	117	2.8	4.1	70.5
Belgium	51.7	23 242	118	m	8.0	70.1
Canada	45.2	23 761	109	4.2	7.4	79.4
Czech Republic	38.9	13 087	104	2.8	5.3	79.3
Denmark	m	25 514	127	m	4.6	81.1
Finland	55.7	20 843	108	2.3	11.1	78.4
France	54.2	21 293	104	3.1	10.7	77.2
Germany	48.6	22 049	117	2.9	9.9	75.0
Greece	m	13 912	129	m	7.4	64.0
Hungary	30.6	9 875	100	4.2	6.7	63.7
Iceland	37.3	25 111	116	m	2.0	90.3
Ireland	35.7	21 009	154	4.1	7.1	70.6
Italy	50.9	21 265	111	2.4	9.5	63.5
Japan	35.7	24 616	117	3.0	3.3	78.3
Korea	26.4	14 477	158	3.8	6.0	72.9
Luxembourg	m	34 484	124	m	m	m
Mexico	m	7 697	112	m	4.7	69.7
Netherlands	48.8	22 142	118	2.8	2.3	73.0
New Zealand	m	17 846	114	3.4	5.9	78.4
Norway	44.2	26 876	130	m	3.1	84.4
Poland	28.3	7 487	130	3.5	9.0	74.8
Portugal	m	14 562	129	m	4.0	81.1
Spain	m	15 990	115	4.2	15.8	67.9
Sweden	m	20 439	102	2.3	7.4	84.1
Switzerland	37.6	25 902	104	2.6	3.3	83.8
Turkey	m	6 463	117	m	4.3	58.3
United Kingdom	42.2	20 483	110	3.4	5.1	79.8
United States	34.3	29 401	112	4.6	4.0	80.3

[1] Austria, Finland, Greece and Norway: Year of reference 1997.

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Table X2.2 **Basic reference statistics (reference period: calendar year 1997, 1997 current prices)**

	Gross Domestic Product (in millions of local currency)[1]	Total public expenditure in millions of local currency)	Total population in thousand (mid-year estimates)	Purchasing Power Parities (PPP)
Australia	564 705	207 435	18 532	1.3016
Austria	2 514 367	m	8 072	13.5115
Belgium	8 675 484	4 483 852	10 181	36.6626
Belgium (Fl)	5 266 000	m	6 096	36.6626
Canada	841 424	380 596	30 287	1.1692
Czech Republic	1 649 500	642 195	10 304	12.2326
Denmark	1 122 975	m	5 284	8.330
Finland	632 882	352 788	5 140	5.90
France	8 137 085	4 409 326	58 604	6.5209
Germany	3 624 000	1 760 540	82 053	2.003
Greece	32 752 185	m	10 487	224.487
Hungary	8 462 000	2 592 500	10 155	84.3849
Iceland	529 949	197 804	270 915	77.915
Ireland	51 823	18 476	3 656	0.6747
Italy	1 983 850 000	1 008 953 000	57 520	1 594.82
Japan	507 851 800	181 437 000	126 166	163.522
Korea	420 986 700	111 132 500	45 991	632.304
Luxembourg	587 035	m	422	40.3402
Mexico	3 182 327	m	93 561	4.4188
Netherlands	708 990	345 970	15 608	2.0515
New Zealand	98 246	m	3 761	1.4638
Norway	1 089 032	481 441	4 405	9.1987
Poland	444 749	125 700	38 650	1.5370
Portugal	17 756 841	m	9 946	122.604
Spain	77 896 600	m	39 323	123.885
Sweden	1 738 859	m	8 846	9.6172
Switzerland	370 468	139 185	7 111	2.011
Turkey	28 835 883 000	m	63 745	69 997.4
United Kingdom	783 620	331 000	59 009	0.6483
United States	7 844 000	2 687 700	266 792	1

[1] Australia and New Zealand: GDP calculated for the fiscal year.

Definitions

Gross Domestic Product (GDP) refers to the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). For countries which provide this information for a reference year different from the calendar year (such as Australia and New Zealand) adjustments are made by linearly weighting their GDP between two adjacent national reference years to match the calendar year.

Purchasing Power Parity exchange rates (PPP) are the currency exchange rates that equalise the purchasing power of different currencies. This means that a given sum of money when converted into different currencies at the PPP rates, will buy the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels among countries. Thus, when expenditure on GDP for different countries is converted into a common currency by means of PPPs, it is, in effect, expressed at the same set of international prices so that comparisons between countries reflect only differences in the volume of goods and services purchased.

Total public expenditure as used for the calculation of the education indicators, corresponds to the non-repayable current and capital expenditure of all levels of government. Current expenditure includes final consumption expenditure (*e.g.* compensation of employees, consumption intermediate goods and services, consumption of fixed capital, and military expenditure), property income paid, subsidies, and other current transfers paid (*e.g.* social

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security, social assistance, pensions and other welfare benefits). Capital expenditure is spending to acquire and/or improve fixed capital assets, land, intangible assets, government stocks, and non-military, non-financial assets, and spending to finance net capital transfers.

GDP per capita is the Gross Domestic Product (in equivalent US dollars converted using PPPs) divided by the population.

The decomposition in percentiles of **gross average earnings of full-time employees** and the ratio 90th percentile/10th percentile used in the fourth column of Table X2.1 show the variation within countries between the lowest and highest salaries.

The **unemployment rate** is calculated as the percentage of unemployed people in the labour force, where unemployment is defined according to the guidelines of the International Labour Office (ILO). The **labour force participation** rate for a particular age group relates to the percentage of individuals in the population of that age group who are either employed or unemployed, where these terms are defined according to the ILO guidelines. Rates for age groups are defined correspondingly.

General Notes

The theoretical framework underpinning national accounts has been provided for many years by the United Nations' publication A *System of National Accounts*, which was released in 1968. An updated version was released in 1993 (commonly referred to as SNA93).

These data will be available in the 2001 edition of *Education at a Glance*. However, basic reference statistics are already based on the new version (SNA 93) for **Australia, Finland, Ireland and Norway** in this edition of *Education at a Glance*.

Sources

- The 1999 edition of the *National Accounts of* OECD *Countries: Main Aggregates*, Volume I.
- OECD Analytical Database, November 1999.

Hungary

- Total public expenditure: CESTAT Statistical Bulletin.

Iceland

- *Statistical Yearbook* published by Statistics Iceland, 1999.

Poland

- Total public expenditure: CESTAT Statistical Bulletin.

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Annex 3

SOURCES, METHODS AND TECHNICAL NOTES

This annex provides notes on the coverage of the indicators as well as on methods, sources and the interpretation of the indicators. It is organised by indicator. Only indicators requiring additional comment appear in this annex.

INDICATOR A2: Educational attainment of the adult population

■ General notes

The most important change between ISCED-97 and ISCED-76 is the introduction of a multi-dimensional classification framework, allowing for the alignment of the educational content of programmes from different countries using multiple classification criteria (Table 1). These dimensions include: 1) the type of subsequent education or destination to which the programme leads; 2) the programme orientation (whether it be general education or pre-vocational education or vocational education); 3) the programme duration (for the ISCED Levels 3, 4 and 5, where programmes that vary widely in duration exist); and 4) position in the national degree and qualification structure. In ISCED-76, there was no such provision. For detailed notes see glossary and the OECD publication *Classifying Educational Programmes, Manual for* ISCED-97 *Implementation in* OECD *Countries, Edition* 1999.

■ Notes on countries

In order to classify national educational attainment levels straddling two or more ISCED-97 levels, a simple rule is used consisting of attributing the programme to the ISCED-97 level where most of the national educational activities are concentrated.

Table 2 comprises for each level of ISCED-97 the national programmes that are included in the respective indicators.

France: There is a clear distinction in France between the ISCED 3C short level (National level V, first level of qualification equivalent to CAP-BEP) and the higher levels which groups together 3C long, 3B and 3A programmes (national level IV, second level of qualification, the general, technological, and professional Baccalauréats). For France therefore, students who have successfully completed secondary education and those who have a level of qualification corresponding to a short ISCED 3C programme are considered to have completed the ISCED 3 level.

United Kingdom: United Kingdom attainment data at upper secondary level (ISCED 3) include a sizeable proportion of persons (about 7 per cent of the population) whose highest level of attainment will in general have been reached at age 16. Although the programmes which they have completed do not formally satisfy the duration criterion for the completion of ISCED level 3, they can lead to a qualification (5 A-C grades in GCSEs) that the United Kingdom considers to be at the same attainment level as that conferred by completion of a number of programmes which do satisfy the ISCED criterion. In other words, the usual ISCED classification criteria have been relaxed for this group, for reasons of consistency with the national qualification structure.

Table 1. **Description of ISCED-97 levels, classification criteria, and sub-categories**

0 **PRE-PRIMARY LEVEL OF EDUCATION**	**Main criteria**	**Auxiliary criteria**		
Initial stage of organised instruction, designed primarily to introduce very young children to a school-type environment	Should be centre or school-based, be designed to meet the educational and developmental needs of children at least 3 years of age, and have staff that are adequately trained (*i.e.*, qualified) to provide an educational programme for the children	Pedagogical qualifications for the teaching staff; implementation of a curriculum with educational elements		
1 **PRIMARY LEVEL OF EDUCATION**	**Main criteria**	**Auxiliary criteria**		
Normally designed to give students a sound basic education in reading, writing and mathematics	Beginning of systematic studies characteristic of primary education, *e.g.* reading, writing and mathematics. Entry into the nationally designated primary institutions or programmes The commencement of reading activities alone is not a sufficient criteria for classification of an educational programmes at ISCED 1	In countries where the age of compulsory attendance (or at least the age at which virtually all students begin their education) comes after the beginning of systematic study in the subjects noted, the first year of compulsory attendance should be used to determine the boundary between ISCED 0 and ISCED 1		
2 **LOWER SECONDARY LEVEL OF EDUCATION**	**Main criteria**	**Auxiliary criteria**	**Destination for which the programmes have been designed to prepare students**	**Programme orientation**
The lower secondary level of education generally continues the basic programmes of the primary level, although teaching is typically more subject-focused, often employing more specialised teachers who conduct classes in their field of specialisation	Programmes at the start of level 2 should correspond to the point where programmes are beginning to be organised in a more subject-oriented pattern, using more specialised teachers conducting classes in their field of specialisation If this organisational transition point does not correspond to a natural split in the boundaries between national educational programmes, then programmes should be split at the point where national programmes begin to reflect this organisational change	If there is no clear break-point for this organisational change, however, then countries should artificially split national programmes into ISCED 1 and 2 at the end of 6 years of primary education In countries with no system break between lower secondary and upper secondary education, and where lower secondary education lasts for more than 3 years, only the first 3 years following primary education should be counted as lower secondary education	**A.** Programmes designed to prepare students for direct access to level 3 in a sequence which would ultimately lead to tertiary education, that is, entrance to ISCED 3A or 3B **B.** Programmes designed to prepare students for direct access to programmes at level 3C **C.** Programmes primarily designed for direct access to the labour market at the end of this level (sometimes referred to as "terminal" programmes)	**1.** Education which is not designed explicitly to prepare participants for a specific class of occupations or trades or for entry into further vocational/technical education programmes. Less than 25 per cent of the programme content is vocational or technical **2.** Education mainly designed as an introduction to the world of work and as preparation for further vocational or technical education. Does not lead to a labour-market relevant qualification. Content is at least 25% vocational or technical **3.** Education which prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification
3 **UPPER SECONDARY LEVEL OF EDUCATION**	**Main criteria**	**Modular programmes**	**Destination for which the programmes have been designed to prepare students**	**Programme orientation**
The final stage of secondary education in most OECD countries. Instruction is often more organised along subject-matter lines than at ISCED level 2 and teachers typically need to have a higher level, or more subject-specific, qualification that at ISCED 2 There are substantial differences in the typical duration of ISCED 3 programmes both across and between countries, typically ranging from 2 to 5 years of schooling	National boundaries between lower secondary and upper secondary education should be the dominant factor for splitting levels 2 and 3 Admission into educational programmes usually require the completion of ISCED 2 for admission, or a combination of basic education and life experience that demonstrates the ability to handle ISCED 3 subject matter	An educational qualification is earned in a modular programme by combing blocks of courses, or modules, into a programme meeting specific curricular requirements A single module, however, may not have a specific educational or labour market destination or a particular programme orientation Modular programmes should be classified at level "3" only, without reference to the educational or labour market destination of the programme	**A.** ISCED 3A: programmes at level 3 designed to provide direct access to ISCED 5A **B.** ISCED 3B: programmes at level 3 designed to provide direct access to ISCED 5B **C.** ISCED 3C: programmes at level 3 not designed to lead directly to ISCED 5A or 5B. Therefore, these programmes lead directly to labour market, ISCED 4 programmes or other ISCED 3 programmes	**1.** Education which is not designed explicitly to prepare participants for a specific class of occupations or trades or for entry into further vocational/technical education programmes. Less than 25 per cent of the programme content is vocational or technical **2.** Education mainly designed as an introduction to the world of work and as preparation for further vocational or technical education. Does not lead to a labour-market relevant qualification. Content is at least 25% vocational or technical **3.** Education which prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification

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Table 1. **Description of ISCED-97 levels, classification criteria, and sub-categories** *(cont.)*

4. POST-SECONDARY NON-TERTIARY	**Main criteria**	**Types of programmes which can fit into level 4**	**Destination for which the programmes have been designed to prepare students**	**Programme orientation**
These programmes straddle the boundary between upper secondary and post-secondary education from an international point of view, even though they might clearly be considered as upper secondary or post-secondary programmes in a national context.	Students entering ISCED 4 programmes will typically have completed ISCED 3. As described above, successful completion of any programme at level 3A or 3B counts as a level 3 completion.	The first type are short vocational programmes where either the content is not considered "tertiary" in many OECD countries or the programme didn't meet the duration requirement for ISCED 5B–at least 2 years FTE since the start of level 5.	**A.** Programmes at level 4, designed to provide direct access to ISCED 5A.	**1.** Education which is not designed explicitly to prepare participants for a specific class of occupations or trades or for entry into further vocational/technical education programmes. Less than 25 per cent of the programme content is vocational or technical.
They are often not significantly more advanced than programmes at ISCED 3 but they serve to broaden the knowledge of participants who have already completed a programme at level 3. The students are typically older than those in ISCED 3 programmes.	Programme duration. ISCED4 programmes typically have a full-time equivalent duration of between 6 months and 2 years.	These programmes are often designed for students who have completed level 3, although a formal ISCED level 3 qualification may not be required for entry.	**B.** Programmes at level 4, designed to provide direct access to ISCED 5A.	**2.** Education mainly designed as an introduction to the world of work and as preparation for further vocational or technical education. Does not lead to a labour-market relevant qualification. Content is at least 25% vocational or technical.
		The second type of programmes are nationally considered as upper secondary programmes, even though entrants to these programmes will have typically already completed another upper secondary programme (*i.e.*, second-cycle programmes).	**C.** Programmes at level 4 not designed to lead directly to ISCED 5A or 5B. These programmes lead directly to labour market or other ISCED 4 programmes.	**3.** Education which prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification.
5. FIRST STAGE OF TERTIARY EDUCATION	**Classification criteria for level and sub-categories (5A and 5B)**		**Cumulative theoretical duration at tertiary**	**Position in the national degree and qualifications structure**
ISCED 5 programmes have an educational content more advanced than those offered at levels 3 and 4.	Entry to these programmes normally requires the successful completion of ISCED level 3A or 3B or a similar qualification at ISCED level 4A or 4B.			
5A ISCED 5A programmes that are largely theoretically based and are intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skills requirements.	The minimum cumulative theoretical duration (at tertiary level) is of three years (FTE). The factury must have advanced research credentials. Completion of a research project or thesis may be involved.	The programmes provide the level of education required for entry into a profession with high skills requirements or an advanced research programme.	**A.** Duration categories: Medium: 3 to less than 5 years; Long: 5 to 6 years; Very long: more than 6 years.	**A.** Categories: Intermediate; First, Second, Third and further. Intermediate degrees are not counted as graduation in this publication.
5B ISCED 5B programmes that are generally more practical/technical/occupationally specific than ISCED 5A programmes.	Programmes are more practically oriented and occupationally specific than programmes at ISCED 5A and they do not prepare students for direct access to advanced research programmes. They have a minimum of two years' full-time equivalent duration.	The programme content is typically designed to prepare students to enter a particular occupation.	**B.** Duration categories: Short: 2 to less than 3 years; 3 to less than 5 years; Long: 5 to 6 years; Very long: more than 6 years.	**B.** Categories: Intermediate, First, Second, Third and further. Intermediate degrees are not counted as graduation in this publication.
6. SECOND STAGE OF TERTIARY EDUCATION (LEADING TO AN ADVANCED RESEARCH QUALIFICATION)				
This level is reserved for tertiary programmes that lead to the award of an advanced research qualification. The programmes are devoted to advanced study and original research.	The level requires the submission of a thesis or dissertation of publishable quality that is the product of original research and represents a significant contribution to knowledge. It is not solely based on course-work.	It prepares recipients for faculty posts in institutions offering ISCED 5A programmes, as well as research posts in government and industry.		

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Table 2. **Standardised presentation of national ISCED-97 mappings**

	Pre-primary and primary education	Lower secondary education	Upper secondary education				Post-secondary non-tertiary education	Tertiary-type B education	Tertiary-type A education	Advanced research programmes
	ISCED 0/1	ISCED 2	ISCED 3C Short	ISCED 3C Long	ISCED 3B	ISCED 3A	ISCED 4	ISCED 5B	ISCED 5A	ISCED 6
Australia		0/1/2, 2B/2C			3B	3A, 3A/4		5B	5A	5A/6
Austria		0/1/2			3B	3A	4A	5B		5A/6
Belgium	1	2		3CL/4		3A		5B	5A	5A/6
Canada		0/1/2, 2				3	4	4/5B	5A	5A/6
Czech Republic	0/1	2		3CL		3A, 3A/4				5A/6
Denmark	1	2		3C/4C	3B/4B	3A/4A		5B	5A	6
Finland	0/1	2				3A		5B	5A	6
France	0, 1	2A, 2B	3CS	3CL	3B	3A	4A, 4	5B, 5AI	5A	5A/6
Germany	1	2A			3B	3A	4	5B	5A	
Greece	0/1	2		3C	3B	3A	4C	5B	5A	6
Hungary	0/1	2		3C, 3C/4B		3A			5A	5A/6
Iceland	0/1	2A, 2C	3CS			3A	4C	5B	5A	6
Ireland	0/1	2				3A/4		5B/4		5A/6
Italy	0/1	2	3CS	3CL		3A/3B	4C		5A/5B	6
Japan		0/1/2				3A/3C		5B		5A/6
Korea	0/1	2				3A/3C		5B		5A/6
Mexico	0, 1	2, 2/3A		3CL				5B		5A/6
Netherlands	1	2				3A/3C			4/5B/5A, 5A	
New Zealand	0, 1			3CL		3A	4C	5B	5A	5A/6
Norway	0, 1	2A		3C		3A	4C	5B	5A	6
Poland		1/2	3CS			3A	4B			5B/5A/6
Portugal	1	2				3/4		5B	5A	6
Spain	0/1, 1	2	3CS		3B	3A	4B	4C/5B, 5B	5A	6
Sweden	1	2				3A, 3		4/5B	5A	5A/6
Switzerland	0/1	2A		3CL	3B/4B	3A/4A		5B		5A/6
Turkey	0, 1	2			3B	3A				5A/6
United Kingdom		2	3CS	3CL		3A		5B	5A	6
United States	0/1	2				3		5B, 5AI	5A	6

Note ISCED 5AI Tertiary-type A, intermediate degree

Table 3. **Sources**

	Statistical agency	Source	Reference period	Coverage	Primary sampling unit	Size of the sample	Overall rate of non-reponse	Remarks
Australia	Australian Bureau of Statistics	Australian Bureau of Statistics, Labour Force Australia	May 1998	Data refer to persons aged 15 to 64	Individual respondents within households	54 000 (2/3 of 1 per cent of the estimated population)	3.7%	Households are selected and all non-visiting adults aged 15 to 64 are interviewed
Austria	Austrian Central Statistical Office	Quarterly Mikrocensus	The data refer to annual averages of quarterly the Mikrocensus sample survey	Data refer to persons aged 15 and over				
Belgium	Nationaal Instituut voor de Statistiek/National Statistical Office	Enquête naar de Arbeidskrachten/Labour Force Survey	May-June 1998			80 065 in sample, 32 800 household		
Canada	Statistics Canada	Monthly Labour Force Survey	The annual data are averages of monthly estimates	Data refer to persons aged 15 and over	Household			
Czech Republic	Czech Statistical Office (CSU)	Labour Force Sample Survey	Annual average of quarterly estimates	Data refer to persons aged 15 and over	Household	Around 26 500 households, *i.e.* approx 72 000 persons, *i.e.* approx 60 000 persons aged 15 and over	1st interview 20%, 2nd-5th interview 2.5%	Classification according to LFS questionnaire until 1997 used
France	INSEE	Labour Force Survey			Household	75 000 households	10%	
Germany	Federal Statistical Office	Labour Force Survey (Microcensus)	20 April-26 April 1998	Data refer to persons aged 15 and over	Household	0.45% of households	5.1 per cent for Questions on Educational Attainment	
Greece	National Statistical Services of Greece	Labour Force Survey	2nd quarter of 1997	Total population of private households	Household	61 679 households	5% of the total surveyed households	
Hungary	Hungarian Central Statistical Office	Labour Force Survey	Data are averages of quartely figures		Household	50 000 persons in 1993-97, 64 000 since 1998	20-21%	Armed forces are not included in the data
Iceland	Statistics Iceland	Icelandic Labour Force Survey	The annual data are averages of bi-annual (April and November) estimates	All resident persons aged 16-74 years	Individuals	4 200	12%	
Ireland	Central Statistics Office	Beginning 4th quarter 1997, a new Quartely National Household Survey (QHNS) was implemented, replacing the annual Labour Force Survey (LFS)	The QNHS is a continuous survey. Results are compiled for seasonal quarters – *i.e.* quarter two refers to March, April and May	Data refer to persons aged 15 and over		Nationwide sample of about 3 000 households every week		
Italy	ISTAT	Household Labour Force Survey	The annual data are averages of quarterly estimates	Data refer to persons aged 15 and over				
Japan	Statistics Bureau Management and Coordination Agency	Special Survey on the Labour Force Survey	February 1997-1998	Data refer to persons aged 15 and over	Household			
Korea	National Statistical Office	Annual Report on the Economically Active Population Survey	Annual average of monthly estimates			30 000 households		

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Table 3. **Sources** *(cont.)*

	Statistical agency	Source	Reference period	Coverage	Primary sampling unit	Size of the sample	Overall rate of non-response	Remarks
Mexico	Secretaría del Trabajo y Prevision Social (STPS)	Encuesta Nacional de Empleo (ENE)	Bi-annual survey since 1991, yearly since 1995	The survey covers civilian resident population aged 12 years and over excluding armed forces	Household	48 000 in 1997 (national) and 135 000 in 1998 (by state)	Around 15%	In odds years the survey is representative for state, what increases the sample significantly
New Zealand	Statistics New-Zealand	Quaterly Household Labour Force Survey	The annual data are averages of quarterly estimates	Data refer to persons aged 15 and over	Household			
Poland	Glowny Urzad Statystyczny	Labour Force Survey	The data are averages of published quarterly figures	Data refer to persons aged 15 and over	Household	About 22 000 households	1997 – 9.6% 1998 – 11.6%	
Spain	Instituto Nacional de Estadística	Quaterly Household Labour Force Survey	The annual data are averages of quarterly estimates	Data refer to persons aged 16 and over	Enumeration area		Around 11%	
Sweden	Statistiska Centralbyran	Monthly Labour Force Survey	The annual figures are averages of monthly estimates	Data refer to persons aged 16 and over				
Switzerland	OFS	Labour Force Survey	The annual data refer to the second quarter (April-June)	Data refer to persons aged 15 and over	Household			
Turkey	State Institute of Statistics (SIS)	Household Labour Force Survey	Semi-annual survey since October 1988 Annual average of April and October	Data refer to persons aged 15 and over	Household	15 000 household in each survey	10% (1 500 households in each survey)	
United Kingdom	ONS	Labour Force Survey	Spring Labour Force Survey	Data refer to persons aged 15 and over				
United States	Census Bureau and Bureau of Labour Statistics	March Current Population Survey (CPS)	The annual data are averages of monthly estimates	Data refer to persons aged 16 and over	Household	64 659 household, 56 768 families, and 131 617 persons	7.2% based on households	

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INDICATOR B1: Educational expenditure relative to gross domestic product

■ General notes

Notes on methodology

- Reference period

Statistics on educational expenditure relate to the calendar year 1997. GDP consumer price deflators from the OECD National Accounts database are used to adjust the data on expenditure where the national financial year does not coincide with the calendar year. In order to make this adjustment, the data on educational finance are multiplied by the ratio of GDP price levels between the calendar year for which data are published and those of the preceding calendar year, in proportion to the fraction of the national financial year that overlaps with the previous calendar year. (see Annex 1) The following two limitations of the use of such deflators should be recognised: *i)* The adjustments relate to changes in the general (GDP) price level but not to the price level for educational services. The assumption is made that educational costs are measured in terms of national income forgone so that a GDP price index is justified (the alternative would be to express costs in terms of volume of resources spent on education by means of a price index that is specific to the education sector). *ii)* No allowance has been made for real growth in educational expenditure (increases in excess of inflation or smaller increases) that might have taken place during the corresponding period of adjustment. It would only be possible to take real growth into account retrospectively. Nevertheless, the adjustment for inflation does eliminate one significant source of non-comparability of expenditure figures.

For countries for which GDP is not reported for the calendar year, GDP is estimated as: w_{t-1} $(GDP_{t-1}) + w_t$ (GDP_t) with w_t and w_{t-1} being the weights for the respective portions of the two calendar years.

- Calculation of estimates in Charts B1.3 (B), (C) and (D)

Chart B1.3 (B), (C) and (D) show shifts in educational expenditure that would be expected if participation by children in a country's education were at the OECD average level. The expected enrolment for a given country; is calculated as follows: let POP *(i,k)* be the population in country *i* at age *k* and AER *(k,l)* the OECD average enrolment rate at age *k* at level of education *l*. The expected enrolment is then calculated as .

$$EE(i) = \sum_{k=5}^{29} POP(i,k) * AER(k,l)$$

The expected difference in expenditure for country I at level *l*, as shown in Charts B1.3 (B), (C) and (D), is calculated as EX *(i,l)**(EE *(i,l)*/RE *(i,l)*)-EX *(i,l)*, with RE *(i,l)* representing the observed enrolment at level *l* at country *i*. The OECD average enrolment rate is calculated using data from countries for which enrolment data by single year of age are available. EX *(i,l)* represents the expenditure relative to GDP for country *i* at level *l*.

- Calculation of index in Table B1.2

Table B1.2 show the change in expenditure for educational services between 1990 and 1996. All expenditure reported for 1990 was expressed in 1996 constant dollars, adjusted to the price level of 1996 using the private consumer price index (see Annex 2).

■ Notes on specific countries

Coverage

Australia: Educational expenditure *excludes* payments to private vocational education and training institutions; open learning courses; and payments to two private universities. Private expenditure for pre-primary institutions is not included.

Belgium (Flemish Community): Research expenditure is *included* only if covered by funds provided by the Community authorities responsible for education. Research funds from other public and private sources are *excluded*. Transfers and payments to the private sector at the central government level include only scholarships and grants.

Czech Republic: Data from the Ministry of Defence and the Ministry of Internal Affairs are *not included*.

Denmark: The allocation of expenditure on early childhood, primary and lower secondary education is estimated on the basis of the corresponding enrolments. Research expenditure are excluded at the tertiary level with the exception of research on education/teaching.

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Finland: Government transfers and payments to private entities, except financial aid to students, are *excluded*. Funds from foreign sources are *excluded*. Local government expenditure also contains private expenditure.

Germany: Expenditure on the following types of programmes/institutions is *not included* in total expenditure: colleges of nursing; agricultural training and research centres; training of trainee civil servants in public service; support payments for dependent children made to persons undergoing education/training; scholarships granted by private institutions; purchases of commodities and educational services by households. Payments by private households and other private entities to government-dependent institutions are *excluded*. Almost all expenditure on research performed by the higher education sector is *included*.

Greece: Expenditure on early childhood education is *included* in expenditure on primary education.

Iceland: Expenditure by private entities other than households and all capital expenditure by or on private institutions are *excluded*. Funds from foreign sources are also *excluded*. Transfer to other private entities are not included.

Ireland: Only household expenditure on the running costs of schools is *included*. Expenditure by private entities other than households is *only included* for tertiary education.

Italy: Expenditure on private institutions at all levels of education except university *only includes* expenditure by public sources. Private payments other than to institutions are underestimated.

Japan: Expenditures for special training college, "Miscellaneous schools" and educational administration are not allocated by level.

Expenditure not related to school education, such as expenditure for culture, sports and social education are *excluded* where possible. Expenditure for teachers and other personnel *includes* only full-time employees. Expenditure for part-time employees is *included* in current expenditure other than compensation of personnel.

Korea: Expenditure "not allocated by level" *includes* expenditure by research institutes, non-educational organisations supporting educational activities, teacher training institutions and libraries. Central government expenditure on primary and secondary schools affiliated to universities is *included* in tertiary-level expenditure. Compensation of "other educational, administrative, and professional staff" in public institutions of early childhood education is *not included*. Expenditure at the regional level of government on university-level education is *excluded*. Air & Correspondence University expenditure is *excluded* (the open University which is a part-time public institution).

Netherlands: Allocation to the levels is estimated. The distinction between expenditure for public institutions and government-dependent private institutions is often based on the number of pupils/students enrolled in the two categories.

Portugal: Regional and local transfers to the private sector are *not included*. Local direct expenditure for educational institutions are *not included*.

Sweden: Public loans and grants at ISCED 0, 1 and 2 are not included.

Switzerland: Funds from foreign sources at ISCED 0, 1 and 2 are *not included*.

United Kingdom: Expenditure on research and development is *included*. Funds originating in the public sector spent by households on tuition fees are *included, but not* amounts spent by households from their own resources. Expenditure in independent private institutions is *excluded*.

United States: All research expenditure is *included, except* funds for major federal R&D centres administered by universities.

Sources

1999 UNESCO/OECD/EUROSTAT (UOE) data collection on education statistics. National sources are:

Australia: Department of Employment, Education, Training and Youth Affairs, Higher Education Division, Canberra; Australian Bureau of Statistics, "Expenditure on Education Finance" collection; in the case of regional government expenditure, state government data (for public institutions) and school data (for private institutions) were used; "Collection of National Financial Data on Vocational Education and Training"; New South Wales Technical and Further Education, unpublished data.

Austria: Austrian Central Statistical Office, Vienna.

Belgium: Flemish Community: Ministry of the Flemish Community, Education Department, Brussels; French Community: Ministry of the French Community, Education, Research and Training Department, Brussels; German Community: Ministry of the German-speaking Community, Eupen.

Canada: Statistics Canada, Ottawa.

Czech Republic: Unpublished information from Ministry of Agriculture, Ministry of Health, Ministry of Economic Affairs and Ministry of Education.

Denmark: Ministry of Education, Department of Economic Affairs, Copenhagen.

Finland: Statistics Finland, Helsinki.

France: Ministry of National Education, Higher Education and Research, Directorate of Evaluation and Planning, Paris.

Germany: Federal Office of Statistics, Wiesbaden.

Greece: Ministry of National Education and Religious Affairs, Directorate of Investment Planning and Operational Research, Athens.

Hungary: Ministry of Culture and Education, Ministry of Finance, Central Statistical Office, Budapest.

Iceland: National Economics Institute, Reykjavik.

Ireland: Department of Education, Statistics Section, Dublin.

Italy: National Institute of Statistics (ISTAT), Rome; Ministry of Public Education, Statistical Service, Rome.

Japan: Ministry of Education, Science, Sports and Culture, Research and Statistics Planning Division, Tokyo.

Korea: Korean Educational Development Institute, Educational Information Research Centre, Seoul.

Mexico: Secretariat of Public Education.

Netherlands: Central Bureau for Statistics, Department for Statistics of Education, Voorburg; Ministry of Education and Science, Zoetermeer.

New Zealand: Ministry of Education, Wellington.

Norway: Statistical Central Office. Division for Population, Education and Regional Conditions, Kongsvinger; The Royal Norwegian Ministry of Education, Research and Church Affairs, Oslo.

Poland: Central Statistical Office, Republic of Poland, Warsaw.

Portugal: Ministry of Education, Office of Research and Planning, Department of Programming, Lisbon.

Spain: National Institute of Statistics, Sub-directorate General of Social Research and Statistics, Madrid; Ministry of Education, Planning and Statistical Office, Madrid; Ministry of Labour, Madrid.

Sweden: Swedish National Agency for Education (*Skolverket*), Stockholm; Swedish National Agency for Higher Education (*Hogskoleverket*); Statistics Sweden, Örebro.

Switzerland: Federal Statistical Office, Berne.

Turkey: State Institute of Statistics, Ankara.

United Kingdom: Department for Education and Employment, Darlington.

United States: Department of Education, Office of Educational Research and Improvement, National Centre for Education Statistics, Washington, D.C.

INDICATOR B2: Relative proportions of public and private investments in education

■ General notes

Notes on methodology

Table B2.2 shows the number of students that are in institutions that are subject to tuition fees. The classification of the students to one of the groups is based on the type of institution or classes of institutions, not on the level of the individual student. That is, if institutions, that generally charge tuition fees, free individual students from these payments, those students should also be included in the count of students that are obliged to pay tuition fees. If only certain groups of students are obliged to pay fees, *e.g.* foreign students or students from another state or region, then an estimate for the group size should be taken.

Notes on specific countries

See notes on Indicator B1.

Ireland: First time undergraduate students benefit from the 1995 Government decision to abolish tuition fees. Graduate students are subject to tuition fees. Therefore are studies at undergraduate and graduate level treated as being in different institutions

Notes on interpretation

Australia: The value of direct Commonwealth funding to universities has decreased while the value of Commonwealth loans and the value of household payments to universities has increased. This is due changes in the Higher Education Contribution Scheme

United Kingdom: See notes on Indicator B3.

INDICATOR B3: Public subsidies to households

■ Notes on specific countries

See notes on Indicator B1.

Canada, Germany: Coverage of subsidies in kind, such as free or reduced-price travel on public transportation systems are excluded.

Denmark: Coverage of subsidies in kind, such as free or reduced-price travel on public transportation systems are partially excluded.

Ireland: Students in third level education benefit from subsidised travel on the state funded and owned bus and rail systems. The expenditure involved in this subsidy is currently unknown. Students in third level Colleges and Universities can avail of limited on campus medical facilities funded both from central (exchequer) grant and from Registration fees paid by the students themselves. The level of the government funded element in this area is not known.

Switzerland: For students from low income background fees for health insurance are public subsidised. This subsidies amouunt to several 10 million Swiss francs and are excluded.

Notes on interpretation

United Kingdom: The tables and text to this indicator reflect the position in the UK in 1996/97. However, since 1996/97 there have been some very well-publicised changes to the system of student support in the UK. New student support arrangements came into effect in the UK from the start of the 1998/99 academic year. New entrants to tertiary education during that year were, with certain specified exceptions, expected to contribute towards the cost of their tuition. The amount depended on their own and, if appropriate, their parents' or spouse's income. The amount available to students through loans was increased to compensate for a reduction in the level of grants. There were further changes to the system of student support in 1999/2000. New entrants in 1999/2000, together with those classed as new entrants in 1998/99, receive support for living costs solely through loans, which will be partly income-assessed. If students have a disability or a specific learning difficulty they may be able to get extra support in the form of a grant, the Disabled Students Allowance; these allowances are not means-tested.

INDICATOR B4: Educational expenditure per student

See also notes on Indicator B1.

■ General notes

Notes on methodology

- Reference period

For countries for which the financial year and/or the school year does not match the calendar year, corresponding adjustments are needed made. The size of the overall adjustment is minimised by adjusting either the enrolment

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or the financial data, as appropriate, to accord with the calendar year. For countries in which the financial year closely matches the calendar year but for which the school year is different from the calendar year, the enrolment data are weighted to match the calendar year. For countries in which the school year closely matches the calendar year but in which the financial year is different from the calendar year, the enrolment data remain unchanged but the GDP price deflators mentioned under B1 are used to match the financial data to the calendar year. For countries in which neither the school year nor the financial year matches the calendar year, the enrolment data are weighted to match the financial year and afterwards the above-mentioned GDP price deflators are used to adjust the financial year data to accord with the calendar year.

With the change to ISCED-97, data on enrolment for two consecutive years, which are needed for the above adjustments, were not available for all countries. For some countries, therefore, no adjustments were made, *i.e.* the reference period for the number of students is different from the reference period for the expenditure on education.

- Influence of R&D expenditure on tertiary education expenditure

Comparisons of expenditure on tertiary education, especially per tertiary student, can be misleading because the figures for universities and other tertiary institutions include substantial expenditure on research. The research share of total tertiary spending varies between countries, partly because of differences in the proportion of total national research and development (R&D) performed by the higher education sector.

Another reason why research spending distorts comparison of expenditure per tertiary student is that research outlays have not been included to the same extent in the tertiary expenditure figures of all countries. For example, while some countries have excluded separately funded or separately budgeted research, others, such as Hungary and Sweden, have essentially included all research outlays by institutions of higher education in their tertiary expenditure statistics.

A comparison of expenditure per student including and excluding R&D for selected countries is shown in Annex 3 of the 1995 edition of *Education at a Glance*. The results shown there indicate that research spending accounts for a significant portion of total expenditure on tertiary education. They also show that there is wide variation in the estimated research share of total tertiary expenditure. For the handful of countries that were covered by this comparison, the subtraction of R&D expenditure from tertiary education expenditure reduced the estimated expenditure per student by amounts ranging from 14 to 37 per cent.

It follows that international differences in spending per tertiary student shown in this indicator, and in spending on tertiary education as a percentage of GDP shown in Indicator B1, partly reflect differences between countries in the research roles of institutions of higher education. The spending differences do not necessarily reflect differences in the amounts spent per student to support the teaching functions of tertiary institutions.

- Estimation of unit costs using the approximation formula

The estimates of cumulative expenditure on education over the average duration of tertiary studies were obtained by multiplying annual expenditure per student by an estimate of the average duration of tertiary studies. Using the approximation formula, the latter estimate was approximated by the rate of turnover of the existing stock of enrolments, obtained through the ratio of flow data (entrants and leavers) to the corresponding numbers of students enrolled. The formula $D = (S_{t-1} + S_t)/(Z_t + A_t)$ was used for this calculation, where S_t is the number of students enrolled at the end of year *t*, S_{t-1} is the number of students at the beginning of year *t* (approximated by the number of students enrolled at the end of the preceding school year), Z_t is the number of students who are in their first year of study in year *t*, and A_t is the number of leavers in the school year *t* (approximated by $S_{t-1} + Z_t - S_t$). Full-time equivalents have been used to estimate enrolments. The number of entrants to full-time programmes has been used to estimate the inflow. All participants are included, even those who will eventually not obtain a degree.

The estimate is based on a number of simplifying assumptions: first, it is assumed that transition ratios are constant over time. Secondly, expenditure for the current reference year is assumed to be representative for the total duration of studies. OECD trend data indicate that real expenditure per student is fairly constant.

- Estimation of unit costs using the chain method

The estimates of cumulative expenditure on education over the average duration of tertiary studies are obtained by multiplying annual expenditure per student by an estimate of the average duration of tertiary studies. Using the chain method, the duration of study is defined as the sum of the probabilities, for each year of study, that a student who has entered tertiary education will still be enrolled in that year of study. So the duration is defined as $D = \sum_{i=1}^{10} q_i$, where q_i is the probability that a student will reach the *i*-th year of study, *i.e.*, the proportion of individuals in the *i*-th year of study relative to those studying in the first year *i*-1 years before. With the chain method all conditional probabilities are derived from data of two adjacent years, the reference year and the preceding year. Given the number of students *s* in the year *i* of study for the year *t* and the number of students in the year *i*-1 of study for the year *t*-1 the transition rates can be calculated for each year of study as $a_{i,t} = s_{i,t}/s_{i-1,t-1}$. The transition rates give, for each year of study, the probability that a student from year *i*-1 will continue studying in year *i*. The product of all transition rates 1 to I gives the probability, for year *i* of study, that a student who started *i*-1 years before will still be enrolled in year *i* of study. Finally, the sum of all conditional probabilities gives an estimate of the average duration of tertiary education. Expenditure for the current reference year is assumed to be representative of the total duration of studies.

■ Notes on specific countries

Coverage

- Estimation of the duration of tertiary education calculated using the chain method

Canada: The 6th year of study *includes* the 7th, 8th, 9th and 10th years of study.

Germany: The model for the calculation of the average duration of tertiary studies is nationally modified. Students beyond the 10th year of study were not taken fully into consideration. Students in the 10th year of study or beyond amounted to around 10 per cent of the total enrolment in the academic year 1994/5. The reported duration in the case of Germany is a lower boundary of the total duration and most likely underestimated. In general, non-university tertiary education has a duration of 2 years, but part-time courses take up to 4 years. No distinction is made between part-time and full-time studies at the university level.

Greece: The 5th year of study *includes* the 6th year and beyond.

Italy: For non-university education the maximum duration of study is only 4 years. Part-time is not applicable.

Korea: The maximum duration of non-university education is 3 years. The 6th and 8th years and beyond are *included* in the 7th year of study.

United Kingdom: The chain method has been amended slightly in order to be able to use the available UK data. Average durations have been calculated separately using the chain method described above, for each of the main types of course at tertiary level. To take account of the fact that many students go on to take a further course after their initial courses, these figures have then been combined according to the numbers of students following each of the main pathways at tertiary level. The total average durations shown for university and all tertiary levels are therefore weighted averages of the individual average duration for each type of course. Coverage excludes those studying in further education institutions, though these account for less than 10 per cent of all students at the tertiary level.

Notes on interpretation

Switzerland: Expenditure per student is very high at the university level. This is mainly due to the structure of the university system: a high number of universities in relation to the size of the country (due also to the coverage of three language regions), the small size of some universities, a wide range of provision at each university, and relatively low student/teaching staff ratios. Furthermore, teachers' salaries at university level are comparatively high, and university expenditure also *includes* expenditure on research and development.

Sources: See Indicator B1.

INDICATOR B5: Educational expenditure by resource category

See also notes on Indicator B1.

■ Notes on specific countries

Coverage

Canada: Current expenditure in independent private institutions at ISCED 5B includes capital expenditure.

Sources: See Indicator B1.

INDICATOR B6: Public funds by level of government

See also notes on Indicator B1. Detailed notes on data on the level of decision can be found in the 1998 edition of *Education at a Glance*, at indicator E5.

General notes

Notes on methodology

See also notes on Indicator B5.

Table B6.2 shows the distribution of public expenditure across public and private educational institutions. Since this shows only the proportion of public funds spent on private institutions and does not include private funds, this table gives no indication of the total distribution of private and public educational expenditure. This can be found in Indicator B2.

Notes on specific countries

Notes on methodology

Hungary: Regional governments (counties) and municipalities have been regarded as local government agencies because regional governments have no significant redistribute role: they provide services which are not provided by municipalities in the region.

Sources: See Indicator B1.

INDICATOR B7: Ratio of students to teaching staff

General notes

In a number of countries head teachers and other administrative personnel are also involved in teaching. Those head teachers should be prorated, *i.e.* their workload distributed, between instructional personnel and school level management if information is available on the amount of time these persons spend on different duties and responsibilities.

Notes on specific countries

Coverage

Australia: Teaching staff at primary education *includes* school level administrative staff. Teachers in tertiary non-university education are *excluded*.

Austria: Headmasters and time components of other teachers reserved for professional or administrative tasks are included in teaching time.

Belgium (Flemish Community): Tertiary-type B includes some type A education. The personnel of "hogeschoolenonderwijs" (type B + type A) has been integrated entirely in here.

Finland: full-time/part-time division is not available for educational personnel in the private sector. All staff in the private sector is coded to be full-time.

Germany: Since data for teachers of the work-based component of combined school and work-based programmes are *not available*, full-time students in combined school and work-based programmes are counted as part-time students (with a conversion factor of 0.4) for the calculation of the student/teacher ratio.

Hungary: Teaching staff includes partially health and social support staff.

Iceland: Teaching staff at the tertiary level includes teaching/research assistants.

Ireland: Student teaching staff ratio for secondary education includes post-secondary non-tertiary education. Teaching staff at the tertiary level includes teaching/research assistants.

Norway: Calculation of student teaching staff ratios for primary and secondary education based on calculations of the Ministry for Education. They include public only.

Spain: Student teaching staff ratio for secondary education includes post-secondary non-tertiary education.

Sources: See Indicator B1.

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INDICATOR C1: Overall participation in education

General notes

Notes on methodology

- Reference dates

Statistics that relate participation data to population data are published for the reference date that was used by national authorities for these statistics. The assumption is made that age references in the enrolment data refer to 1 January of the reference year. For **Australia** 1 July is used as the reference date for both enrolments and population data. For **Japan** 1 October is used as the reference date for ages.

The dates or periods at which students, educational staff and educational institutions were counted have not been provided to the Secretariat by all countries. Some countries collect these statistics through surveys or administrative records at the beginning of the school year while others collect them during the school year, and yet others at the end of the school year or at multiple points during the school year. It should be noted that differences in the reference dates between, for example, enrolment data and population data can lead to errors in the calculation (*e.g.*, net enrolment rates exceeding 100 per cent) in cases where there is a significant decrease or increase over time in any of the variables involved. If the reference date for students' ages used in the enrolment data differs from the reference date for the population data (usually 1 January of the reference year), this can be a further source of error in enrolment rates.

- Expected years of schooling

School expectancy (in years) under current conditions (Table C1.1) excludes all education for children younger than five years. It includes adult persons of all ages who are enrolled in formal education. School expectancy is calculated by adding the net enrolment ratios for each single year of age. No data are available for the ages 30 and above. For persons aged 30 to 39 enrolment rates were estimated on the basis of five-year age bands and for persons 40 and over enrolment rates were estimated on the basis of the cohort size of 39 year-olds.

- Expected hours of training over the life cycle and participation rates in continuing education and training

Data on continuing education and training are from the International Adult Literacy Survey (IALS), which was undertaken by Statistics Canada and the OECD at the end of 1994 and in 1995. For details on IALS see Indicator A2.

Indicator C1 combines information on participation in formal education, based on the UOE data, and in continuing education, based on IALS. When combining these two sources the problem of different coverage arises. IALS asked for any education and training, which includes education under the coverage of the UOE. In order to complement the participation statistics in formal education it is necessary to exclude in IALS education of students who are most likely to be covered in the UOE. Therefore IALS data were not included for those students who took at least one course that exceeded ten weeks and which lead to a university degree, a college diploma/certificate, a trade-vocational diploma/certificate or an apprenticeship certificate.

The expected number of hours of training is calculated as the sum of the average number of hours of training by single year of age for the ages 15 to 64. $SH = \sum_{a=15}^{64} \overline{H_a}$ where $\overline{H_a}$ is the average number of hours of training for persons aged *a*. $\overline{H_a}$ is calculated as, $\overline{H_a} = \frac{\sum H}{\sum Weight}$ where H is the number of hours per participant and weight is the IALS sampling weight for each participant. All standard errors were calculated using jack-knife estimates based on the 30 replicate weight. For details see IALS Microdata Package Guide Section 8.1.

IALS participants were asked in how many courses they were enrolled in the last 12 months. More details were obtained for the three most recent courses. Therefore the number of hours was calculated on the basis of these three courses. In order not to underestimate the total number of hours for those students participating in four or more courses, information on these courses was imputed

Therefore all respondents are divided into classes by country (i) and number of courses taken (nc). For each group the average duration of a single course was calculated as $\overline{C_{i,nc}} = \frac{\sum (h_{i,nc}/3)}{\sum weight_{i,nc}}$. For each person in country *i* who took *nc* courses, with $nc > 3$, the total number of hours of training is calculated as the number of hours in the most recent three courses (*h*) plus the average duration of further courses times the number of further courses: $H = h + \overline{C_{i,nc}} * (nc - 3)$. If for a respondent the adjusted number of hours exceeded 1600 hours, the number of hours was adjusted to 1600.

■ Notes on specific countries

Coverage

Australia: Private vocational education and some government-funded 'Industry Training Institutions' for vocational education are *not included*. Students participating in Open Learning Courses and two private universities are *excluded*. The vocational education and training sector recording system does not separately identify apprentices so that apprentices are counted as part-time rather than full-time students. Pre-primary enrolment is *not included* when males and females are reported separately. It is assumed that the overwhelming majority at the pre-primary level would meet the full-time criteria.

Belgium: Data concerning entrepreneurship training courses are *not included* for the Flemish Community. Data for independent private institutions are *not available*. Since institutions of this type are not very numerous, data for all types of institutions are only slightly underestimated.

Denmark: Kindergartens and "age-integrated" institutions are classified as public institutions. Although one-third of these institutions are nationally referred to as private institutions, they are mainly publicly controlled and managed and the fees paid by parents are the same. Adult education is *excluded*.

Finland: Data on full-time students include both full-time and part-time enrolments. Students are not classified into full-time and part-time students on the basis of their study activities. Enrolment at ISCED 0 non-school establishments (children's day care centres, kindergartens; 95 per cent) is estimated. The estimate is based on municipality-specific information supplied to Statistics Finland by the municipalities and information from the National Research and Development Centre for Welfare and Health.

Germany: Students pursuing doctoral studies (ISCED 6) are not obliged to register at university and it is not possible to estimate their number.

Hungary: Tertiary-type B students are excluded. Students with disabilities have been *included* in the figures for the primary and lower secondary level of education. At the tertiary-type A level, students by age-group are estimated. The distribution of students aged 26 to 29 by single year is estimated.

Ireland: Nursing students who follow a type of dual training with education and training taking place in hospitals only are *excluded*. Most but not all adult education is excluded. Adult education includes part-time studies at ISCED 3 and 5 undertaken by persons returning to education after an interruption of some years. Not all pre-primary enrolments are *included* because data are not collected from many privately-owned pre-schools. Persons aged 13 or more in special schools are not allocated by level. Coverage of part-time enrolment data is uneven. Many part-time students in independent private colleges at ISCED levels 3 and 5 have been *excluded*. Only full-session part-time students (doing courses lasting approximately the full year) have been *included* in the data.

Japan: Estimate figures are provided for enrolment by age in primary and secondary education on the assumption that all students at the same grade are the same age. Part-time enrolment at the upper secondary level includes students in correspondence courses at upper secondary schools. A part-time student equals one full-time equivalent at this level. Part-time students at the tertiary level include students studying by correspondence (including the University of the Air) and auditors of any type of colleges. A part-time student equals a full-time equivalent. Special Training Colleges (general course) and Miscellaneous Schools (there is no entrance requirement for these schools/courses) are not allocated by level.

Mexico: Enrolment corresponding to programs for adult education (2 752 175 students); special needs education (312 325 students); childhood education (436 803 children); and some other programs cannot be divided according to the UOE requirements (*e.g.*, by age, sex, *etc.*). For this reason, these students are *not included*.

Netherlands: Only educational programmes with a theoretical duration of more than 12 months are *included*.

Switzerland: Students aged 40 years and older are included in the age group 30-39.

Notes on interpretation

Japan, Portugal: Net enrolment rates exceed 100 for some ages because there are different reference dates for school enrolment and demographic data.

Spain: Net enrolment rates exceed 100 in some cases. The reason lies partly in the nature of the population forecasts by the National Institute of Statistics, and partly in a possible over-reporting of enrolments by schools.

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Luxembourg: Net enrolment rates by single year of age are *underestimated* since they *only include* those students who attend a public or publicly-funded school in Luxembourg. Students who are residents of Luxembourg but attend either a non-publicly funded school in Luxembourg or a school in a neighbouring country are *excluded*.

INDICATOR C2: Participation in and completion of secondary education

■ General notes

Notes on methodology

In order to calculate gross graduation rates countries identify the age at which graduation typically occurs. The graduates themselves, by contrast, may be of any age. To estimate gross graduation rates, the number of graduates is divided by the population at the typical graduation age (Annex 1). In many countries, defining a typical age of graduation is difficult because ages of graduates vary. Typical graduation ages are shown in Annex 1.

The *unduplicated count of all* ISCED 3 *graduates* gives the number of persons that graduate in the reference period from any ISCED 3 programme **for the first time**, *i.e.*, students who did not obtain an ISCED 3 (A, B or C) qualification in **previous** reference periods. For example, students who graduated from ISCED 3A programmes in the period of reference but obtained a short ISCED 3C graduation in an earlier year should (correctly) be reported as ISCED 3A graduates, but must be excluded from the unduplicated count of graduates in column 2 of Table C2.2. Similar cases may occur with the reporting of vocational and general programmes.

See also notes on Indicator C1.

■ Notes on specific countries

Coverage

Hungary: The number of upper secondary graduates *includes* all those enrolled in the last year of study. As a consequence, the number of graduates is *overestimated* because of double counting of repeaters and inclusion of those students who fail.

Sweden: For graduates from vocational programmes, only the *gymnasium* is *included*; adult education is *excluded*.

Notes on interpretation

Belgium (Flemish Community): Graduation rates are subject to bias for three reasons: *i)* presence of double counting, particularly for part-time programmes; *ii)* diplomas in part-time programmes are awarded to students whose age is much higher than the typical age; and *iii)* many diplomas are awarded to students aged over 18 or 19 years. ISCED3C short programmes are excluded from the upper secondary graduation rates in order to reduce double counting.

Sweden: National schools for adults and students in schools for the mentally retarded are not separated into general or vocational. Thus, general and vocational do not add up to the total number of students.

Sources: For OECD countries see Indicator B1. For WEI participants See Indicator C1.

INDICATOR C3: Access to and participation in tertiary education

■ General notes

See also notes on Indicator C1.

Notes on methodology

- Calculation of net entry rates

The net entry rates given in Table C3.1 represent the proportion of persons of a synthetic age cohort who enter a certain level of tertiary education at one point during their lives. The net entry rates are defined as the sum of net entry rates for single ages. The total net entry rate is therefore the sum of the proportions of new entrants at Tertiary-type level A and B aged *i* to the total population aged *i*, at all ages. Since data by single year are only available for ages 15 to 29, the net entry rates for older students are estimated from data for 5-year age bands.

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- Calculation of age at the 25th, 50th and 75th percentiles

The ages given for the 25th, 50th and 75th percentiles are linear approximations from data by single year of age. The *i*-th percentile is calculated as follows: let age *k* be the age for which less than *i* per cent of new entrants are younger than *k* years of age and more than *i* per cent are younger than *k* + 1. Let P (<*k*) be the percentage of new entrants aged less than *k* and P (*k*) the percentage of new entrants aged *k*, then the age at the *i*-th percentile is k + (i-P (<k) / (P (k)-P (<k))).

- Change in total tertiary enrolment

The change in total tertiary enrolment is expressed as an index; the base year of which is 1990 (100). The number of tertiary students in 1997 is therefore expressed as a percentage of the number of tertiary students in 1990. The impact of demographic change on the total enrolment is calculated by applying the enrolment rates as measured in 1990 to the population data for 1997: the population change was taken into account while the enrolment rates by single year of age were kept constant at the level of 1990. The impact of changing enrolment rates is calculated by applying the enrolment rates as measured in 1997 to the population data for 1990, *i.e.*, the enrolment rates by single year of age for 1997 are multiplied by the population by single year of age for 1990 to obtain the total number of students that could be expected if the population would have been constant since 1990.

- Enrolment by type of institution

Educational institutions are classified as either public or private according to whether a public agency or a private entity has the ultimate power to make decisions concerning the institution's affairs. The extent to which an institution receives its funding from public or private sources does *not* determine the classification status of the institution. An institution is classified as *private* if it is controlled and managed by a non-governmental organisation (*e.g.*, a Church, a Trade Union or a business enterprise), or if its Governing Board consists mostly of members not selected by a public agency. The terms "*government dependent*" and "*independent*" refer only to the degree of a private institution's dependence on funding from government sources; they do not refer to the degree of government direction or regulation. A government-dependent private institution is one that receives more than 50 per cent of its core funding from government agencies. An independent private institution is one that receives less than 50 per cent of its core from government agencies.

■ Notes on specific countries

Coverage

Czech Republic: Statistics on entrants includes returnees to a first programme and a negligible number of returnees to a second programme.

Finland: Age distribution is partially estimated.

Spain: Statistics on entrants to tertiary-type B programmes includes returnees to a first programme.

Israel: Statistics on entrants to tertiary-type B programmes includes returnees to a first programme and returnees to a second programme.

Notes on interpretation

Finland: The principal reason why the ISCED 5A net entry rate is so much higher than in the previous year is that a major reform of polytechnic education is currently being implemented in Finland in which tertiary-type B vocational education is being elevated to tertiary-type A level polytechnic education. The last tertiary-type B level vocational college intake took place in autumn 1998. Growth in the number of first year university students also pushes the net rate up. The number of first year university students rose by over one per cent from the previous year. The introduction of the ISCED-97 classification had no impact on the 5A net rate figure.

Notes on methodology

Japan, Korea and Germany (tertiary-type B only): No data on new entrants by age were provided. As a result, net entry rates could not be calculated and gross entry rates were calculated instead. Gross entry rates are the ratio of all entrants, independent of their age, to the size of the population at the typical age of entrance. Gross entry rates are less robust against differences in the size of population by single year of age. Taking into account the effect of changing cohort sizes, all gross rates presented here were tested for possible error. The error is well below five percentage points.

Sources: See Indicator B1.

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INDICATOR C4: Completion of and dropout from tertiary education

General notes – University survival rates

Notes on methodology

In the absence of a standard methodology for the calculation of university survival rates that fits all educational systems, statistics from both sources – national and international – are presented in this indicator. Results based on the OECD standard methodology are presented for all countries for which this calculation is seen as appropriate to the educational system. For the remaining countries other national methodologies are presented which better reflect the national degree structures. In general three different methods were applied.

Cross-section cohort method

The cross-section cohort method relates the number of graduates of the year of reference to the number of new entrants *n* years before, where *n* is the typical length of a degree course. This method was applied as the OECD standard. The results presented for **Australia, Belgium, the Czech Republic, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Portugal, Spain** and **Switzerland** follow this method and are based on data from the OECD Database.

Germany, Ireland, Japan, New Zealand and **Switzerland** provided additional national statistics on dropout and survival rates. These confirm the international standard calculations based on the OECD database. The table below shows the additional national statistics.

Austria, Greece, Hungary, Mexico and the United Kingdom provided national estimates according to the *cross-section cohort* method, using national data sources. Hungary and the United Kingdom used a weighted cross-section cohort. Here the calculations were completed independently for programmes of different duration; the total is the weighted average.

National calculations on drop out and survival rates for countries for which international calculations were presented in the indicator.

	Year	Survival rate	Drop-out rate	Methodology / Source
Germany	1994	70	30	Cross-section cohort – Hochschul Information System (HIS)
Ireland	1994 (1985)	80	m	True Cohort – Universities student register (The Higher Education Authority)
Japan	1996 (1988)	92	9	True Cohort – School basic survey (Ministry of Education, Science, Sports and Culture)
New Zealand	1995 (1993)	79	21	Cross-section cohort – Regular census from tertiary providers (Ministry of Education)
Switzerland	1995 (1992)	73	27	

True cohort method

The true cohort method takes a single year's entrants and follows them through until all have either dropped out or graduated. This method requires at least *n* years of data where *n* must be large enough to ensure that a minority of entrants are still enrolled in the system. Typically *n* is between eight and ten years. The survival rate gives the proportion of entrants who graduated within *n* years. The results presented in this indicator for **Finland** and the **United States** and the national results for **Ireland, Japan** and **Switzerland** are presented in the table above. Results for the United States, which derive from a sample survey and are not based on student registers, differ from those obtained from other countries.

Synthetic cohort method

The synthetic cohort method takes observations of the probability of graduation, of dropping out or of continuing studying for the different years of study in two subsequent academic years in order to estimate the total development of a fictive cohort. Results according to calculations based on synthetic cohort methods are presented for **Denmark**.

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■ Notes on specific countries – University survival rates

Coverage

Austria: Only regular national students are *included*.

Denmark: Adult education and open education are *not included*.

Finland: Only universities are *included*. This amounts to 71 per cent of all university-level students. Students without a personal register code for the student register are *not included*.

France: Only universities (1 350 000 students out of 2 130 000) are included. Instituts universitaires de technologie (IUT), Instituts de formation des maîtres, Sections de techniciens supérieurs, Classes préparatoires aux grandes écoles and some other institutions are excluded. The concept of survival is not applicable to these programmes.

Ireland: The total number of graduates are *included*, that is, all those who graduated a second time at the same ISCED level. *Excluded* are accountancy students who receive qualifications from professional associations, although some of these students are in full-time attendance at publicly-aided colleges. Also *excluded* are a significant number of part-time students at ISCED 5 who receive professional qualifications from various professional bodies (accountancy, marketing and secretarial). *Excluded* too are around 1,950 student nurses who obtain a nursing qualification after completing 3-4 years of on-the-job training in hospitals. Graduates from independent private colleges are similarly *excluded*.

Italy: At the non-university tertiary level, graduates from independent private institutions are *not included*.

Hungary: Part-time students and students in post-graduate specialisation programmes at ISCED 6 are *excluded*. The students included account for 71 per cent of all enrolled students (head count) or 83 per cent of the full-time equivalent students.

Sweden: Some nursing programmes are now longer than before and graduates from these programmes are now *included* at ISCED 6 instead of ISCED 5 level.

Switzerland: The number of graduates includes some final exams at ISCED 5. Persons who were resident in a foreign country before starting their studies have *not* been *included*.

United Kingdom: Part-time students (17 per cent) and non-HEI students (1 per cent) are *excluded*.

Notes on interpretation

Finland: Calculations are based on the cohort of new entrants from 1985. In 1996, 72 per cent of this cohort had already graduated, 15 per cent were no longer enrolled and 13 per cent were still enrolled. It is assumed that another 3 per cent of the cohort from 1985 will graduate in the coming years, so that the survival rates is 75 per cent.

France: This indicator relates only to rates of access for the second cycle. The rates of access indicate the probability that a general or technological graduate entering the first year of university reaches the second university cycle – the average duration of the first cycle being 3 years – for at least a five-year course.

Hungary: The calculations for Hungary are based on a synthetic cohort, which means that observations from the most recent year were taken across cohorts to make a description of the total development of a fictive cohort. Since the Hungarian tertiary system is currently undergoing rapid change, these results are to be treated with caution. The estimate given reflects several cohorts of students at one point in time while the characteristics in question may change over time. Constantly growing numbers of entrants, changes in the financing of the tertiary institutions and subsidising of students are the main factors of change within the Hungarian tertiary system. Universities have also started to change their programmes from rather strict time and subject schedules to a unit credit system.

United States: Students who were still enrolled after 5.5 years were included in the survival rate. In other words, these students were counted as being successful, leading to an overestimation of the survival rate and an underestimation of the drop-out rate.

Notes on methodology

Austria: The reference period is partly the school year 1994/95 and partly the calendar year 1995. Data refers only to graduates from first programmes. Figures are partly estimated.

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General notes: Graduates at the tertiary level

Notes on methodology

- Calculation of the country mean for medium and long tertiary-type A programmes

Countries which included the graduates of medium tertiary-type A programmes together with the graduates of long programmes (x-code for short programmes) are counted as zero for the calculation of the country mean for medium programmes. In a similar manner, the countries using an *x*-code for long programmes, caused by inclusion of long programmes in the category for short programmes, are counted as zero for the country average for long programmes. This is necessary to ensure that the country averages for short programmes and long programmes add up to the correct country average for all first-stage university programmes.

- Calculation of age at the 25th, 50th and 75th percentiles

The ages given for the 25th, 50th and 75th percentiles are linear approximations from data by single year of age. The *i*-th percentile is calculated as follows: let age k be the age for which less than i per cent of new entrants are younger than k years of age and more than i per cent are younger than $k + 1$. If $P(<k)$ is the percentage of new entrants aged less than k and $P(k)$ is the percentage of new entrants aged k, then the age at the *i*-th percentile is $k + (i - P(<k) / (P(k) - P(<k)))$.

- Duration categories

Tertiary-type A programmes can be sub-classified by the theoretical cumulative duration of programmes. For initial programmes at tertiary level, the cumulative theoretical duration is simply the theoretical full-time equivalent duration of those programmes from the beginning of Level 5. For second programmes cumulative duration is calculated by adding the minimum entrance requirements of the programme (*i.e.*, full-time equivalent years of tertiary education prerequisites) to the full-time equivalent duration of the programme. For degrees or qualifications where the full-time equivalent duration is unknown (*i.e.*, courses of study designed explicitly for flexible or part-time study), cumulative duration is calculated based on the duration of more traditional degree or qualification programmes with a similar level of educational content. The following duration categories are included in ISCED-97:

- Short: 2 to less than 3 years.
- Medium: 3 to less than 5 years.
- Long: 5 to 6 years.
- Very long: more than 6 years.

As "short" programmes would not meet the minimum duration requirement for classification at ISCED 5A, this category is only appropriate for intermediate programmes in the national qualification and degree structure (see below). That is, programmes of less than three years duration must be a component or a stage of a longer programme in order to be classified at Level 5A. Individuals who complete these short programmes would not be counted as 5A graduates however.

Typical graduation ages are shown in Annex 1.

- Tertiary qualifications by field of study

The fields of education used follow the revised ISCED classification by field of education. For definitions and instructions refer to the ISCED Classification (UNESCO, 1997). The classification is in accordance with the fields of training as defined in the *Fields of Training – Manual* (EUROSTAT, 1999).

Notes on specific countries – Graduates at the tertiary level

Coverage

Czech Republic: Some Bachelor's programmes give direct access to second Master's programmes. These combined Bachelor's and Master's programmes form "compound" programmes equivalent to "standard" Master's programmes, and students do not explicitly graduate from these programmes with a Bachelor's degree. Therefore the number of first programmes at tertiary-type A level is slightly underestimated.

Finland: Specialist's degrees in medicine, dentistry and veterinary science and general staff officer's degrees are reported as second degrees although they are classified as third degrees at ISCED 5A. This results in an overestimation of students graduating from second degrees in the form of double counting.

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Sources – University survival rates

International statistics are based on graduate data from the 1996 UNESCO/OECD/EUROSTAT (UOE) data collection on education statistics (for details see Indicator B1) and data on new entrants from the OECD Database which contains data obtained by earlier UOE or UOC data collections.

Sources for national statistics on survival rates are listed below:

Denmark: Individualised statistical register of education (Ministry of Education).

Finland: Student registers (Statistics Finland).

France: Système d'information sur l'enseignement supérieur, Ministère de l'Education nationale, de la Recherche et de la Technologie.

Hungary: Ministry of Culture and Education, Department of Statistics.

Mexico: Secretaria de Educatión Publica.

United States: Beginning Post-secondary Student Longitudinal Survey (NCES).

Sources – Graduates at the tertiary level: See Indicator B1.

INDICATOR C5: Foreign students in tertiary education

General notes

Notes on methodology

Students are classified as foreign students if they are not citizens of the country for which the data are collected. Countries unable to provide data or estimates for non-nationals on the basis of their passports were requested to substitute data according to a related alternative criterion, *e.g.*, the country of residence, the non-national mother tongue or non-national parentage (see notes on specific countries).

The number of students studying abroad is obtained from the report of the countries of destination. Students studying in countries which did not report to the OECD are not included in this indicator.

- Total balance of inflow and outflow

The total balance of inflow and outflow (Table C5.1) is based on data from all countries for foreign students by country of origin. All foreign students originating from countries which did not report these data and all non-OECD countries are excluded. Consequently the inflow reported here is smaller than the total inflow of foreign students, which is reported in column 1 of Table C5.1. The reporting countries for net inflow of foreign students are Australia, Austria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, New Zealand, Norway, Poland, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. Across these countries the total balance of inflow and outflow is in absolute figures zero, and full comparability is ensured.

Notes on specific countries

Coverage

Australia: Only tertiary-type A students are reported by country of origin. The denominator for all indicators on students by country of origin has been adjusted accordingly. Therefore the totals of Tables C5.2 and C5.3 can not be compared with row 1 in Table C5.1.

Canada: Only students who come to Canada for the purpose of study are counted as foreign students. Students with foreign passports who have lived in Canada previously, and persons who come to Canada and commence studying but declare themselves as immigrants, are not counted as foreign students. Only tertiary-type A students are reported. The denominator in all tables has been adjusted accordingly.

Czech Republic: Foreign students in part-time studies are excluded. Foreign students in ISCED 6 and specially organised programmes for working students (ca. 15 per cent) are not broken down by country of origin.

Denmark: The number of foreign students by country of origin are estimated.

France: Fourteen per cent of all foreign students are not classified by origin and level of tertiary education.

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Ireland: Foreign students are defined by domiciliary origin.

New Zealand: Most Australian students are not counted as foreign students.

Norway: Foreign students are defined by country of birth.

Poland: The proportion of foreign students in Poland given in Table C5.1 is based on enrolment data for the academic year 1993/94.

Turkey: Only students who come to Turkey for the purpose of study are counted as foreign students.

Sweden: Students who are not registered in the Swedish population register (mainly from other Nordic countries) are *not included*.

Switzerland: Some foreign students at non-university level tertiary education are *not included*. The total number of foreign students is *underestimated*.

United Kingdom: Foreign students are defined by home address.

Sources: See Indicator B1.

INDICATOR C6: Students receiving additional resources to access the curriculum

Coverage

Austria: The data for national categories in regular classes are estimated.

Belgium (Flemish Community): Data on primary and lower secondary include upper secondary students.

Greece, Ireland, New Zealand: Data are given for public institutions only.

Italy: Data are given for public institutions only, with the exception of special schools.

Hungary: Some students in upper secondary education are also included.

Netherlands: Pre-primary students are included in primary and lower secondary education. The data for national categories in regular classes are estimated

France: Gender breakdown in special schools applies only to national categories 16 and 17 (EREA and SEGPA).

Ireland: Totals have been adjusted to account for double-counting for 19,000 students with special needs in regular classes. Some proportions are likely to be underestimated because of some missing data in lower secondary education.

Spain and Turkey: Categories such as gifted and talented pupils have not been included here.

Notes on interpretation

Netherlands: The percentage of special education needs students in category C is much lower in secondary education than in primary education.

Sources

Data are from a special OECD survey on students receiving additional resources to access the curriculum which was undertaken between 1998 and 1999.

INDICATOR D1: Statutory salaries of teachers in public primary and secondary schools

■ Notes on specific countries

Coverage

Australia: Salary estimates are based on weighted payroll data from New South Wales, Victoria and South Australia covering 67 per cent of the teacher population in Australia. Bonuses are for North South Wales only.

Greece: Bonuses refer to yearly benefits for marriage and children, for work in problematic regions, and for academic qualifications.

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Ireland: Bonuses refer to extra-payments for posts of responsibility and for vice principals (the latter for ISCED 1 only).

New Zealand: Salaries do not include additional remuneration for senior positions, management responsibilities, additional teaching duties and training of student teachers. Bonuses refer to allowances to teachers in schools which are difficult to staff, isolated, where student teacher training activities take place, and to the Maori Immersion Teaching Allowance.

Norway: Bonuses refer to additional payments for teachers with administrative responsibilities.

Portugal: Bonuses do not refer to principals with teaching duties.

Spain: In ISCED 3 vocational, only technical teachers and only vocational or technical (no pre-vocational) programmes are taken into account. Bonuses include extra-payments for teachers on the Canary and Balearic Isles, and in the Spanish cities in North Africa (Ceuta and Melilla). Salary supplements for (deputy) head teachers or secretaries are not included in the bonuses.

Notes on interpretation

Germany: The number of years from minimum to maximum salary depends on the starting age.

Mexico: The number of years from minimum to maximum salary refers to the minimum work experience required to reach the highest scale. This minimum requirement differs between 8 years in low development areas, and 14 years in other regions.

Norway: The minimum wage at ISCED 1, 2 and 3 vocational only applies to a small minority of teachers with only 3 years of study, a situation no longer possible for new teachers since 1992.

Spain: A small salary supplement is added after each period of three years (trienio) in all schools, and – subject to in-service training – after each period of six years (sexenio) in public schools. A maximum of 44 years of experience is assumed for ISCED 0 and 1 teachers, and a maximum of 41 years for ISCED 3 teachers.

Notes on methodology

New Zealand: ISCED 2 bonuses have been calculated as the average of ISCED 1 and 3 bonuses.

Spain: Salary estimates for public school teachers are weighted means of the wages in the different Autonomous Communities. ISCED 2 salaries have been calculated as the average of ISCED 1 and ISCED 3 salaries.

Sweden: Average wages for different age-groups, teacher categories and cohorts of teacher graduates were used to estimate salaries and bonuses of teachers with 15 years of experience and of those at the top of the salary scale.

Switzerland: The salaries and the years from minimum to maximum salary are the means of weighted cantonal values which differ greatly among each other.

Sources

Australia: NSW, Victorian and South Australian Education Departments & the Australian Bureau of Statistics.

Belgium (Flemish Community): De Corte, G., Janssens, G. and Heyvaert, J. (1997), *Onderwijs zakboekje* (1997-1998), Kluwer Editorial: Diegem; Ministerie van de Vlaamse Gemeenschap, Departement Onderwijs.

Belgium (French Community): Statut pécuniaire (Arreté Royal 15-04-1958).

France: Regulations on careers and wages.

Germany: Salary tables, law, decrees, national statistics.

Greece: Ministry of National Education and Religious Affairs.

Ireland: Department of Education and Science, Marlborough St., Dublin 1, Ireland.

Japan: Law on salary of public officials.

Korea: Presidential decree of public servant compensation and allowance.

Mexico: Sindicato Nacional de Trabajadores de la Educación, "Negociación SEP-SNTE 1997". Talleres Gráficos de la editorial del Magiterio Benito Juárez. México, D.F., May 1997; Secretaría de Educación Pública, "Informe de Labores 1996-1997". México, D.F., September 1997.

Netherlands: Financiële Arbeidsvoorwaarden Sector Onderwijs en Wetenschappen and CASO systeem.

New Zealand: Primary, secondary and area schools Teacher Employment Contracts 1998 Payroll Information.

Norway: Agreements between the Ministry of Education and the Teachers' Unions on working conditions and wage statistics

Portugal: Statute of the Teaching career; Collective world contract for private schools' employees.

Turkey: Formal document.

United Kingdom (England): School Teachers' Pay and Conditions Document, 1999.

United States: Schools and Staffing Surveys (SASS) 1993-1994.

INDICATOR D2: Pre-service training requirements for new teachers

General notes

The country-specific requirements for pre-service training of new teachers are provided in Table 4.

In Tables D2.1 and D2.2, data are based on the Third International Mathematics and Science Study (TIMSS) that was undertaken by the International Association for Educational Achievement (IAE) in the school year 1994/95. For details notes see Annex 3 in the 1997 edition of *Education at a Glance*.

Notes on interpretation

The highest level of formal educatiion is reported according to the IEA/TIMSS classification and not always corresponds to the ISCED-97 classification. For detailed notes and information see Table 5.1 in M.O. Martin, V.S. Mullis, E.J. Gonzalez, T. A. Smith, and D.L. Kelly. (1996), *Mathematics Achievement in the Middle School Years*, IEA's *Third International Mathematics and Science Study*, TIMSS International Study Center, Boston College.

Netherlands: the programme followed by teachers in the Netherlands is a Hoger BeroepsOpleiding (HBO: higher professional education). This programme is classified as a secondary and 3 or 4 years teacher training according to the TIMSS classification whereas this programme is classified at Tertiary-type A (ISCED 5A) in the ISCED-97 manual.

INDICATOR D3: Teaching time

Notes on specific countries

Coverage

Australia: ISCED 0 figures are based on South Australian data and pertain to pre-schools attached to primary schools. ISCED 1, 2 & 3 data are based on South Australian and Victorian data. The estimates are derived by using weighted averages using teacher numbers as the base.

Belgium (Flemish Community): ISCED 2 = 1st grade secondary schooling; ISCED 3 = 2nd + 3rd grade secondary schooling. For ISCED 0,1 a differentiation between **assignment** (opdracht), **school-assignment** (schoolopdracht) and **main assignment** (hoofdopdracht) is made. *Assignment* corresponds to "working time". The *school-assignment* coincides with the duties performed in the education context; the main assignment and additional duties, homework (*e.g.*, lesson preparation) not included. The *school-assignment* consists of a maximum of 26 hours. The notion of *main assignment* refers to "teaching time".

Japan: Data for ISCED 3 general also include pre-vocational and vocational courses.

Netherlands: 880 hours is for ISCED 0 and grade 1 and 2 of ISCED 1, grade 3-6 ISCED 1 is 1 000 hours.

Portugal: Applies only to first cycle teachers (grade 1 to 4), which correspond to 50 per cent of the teaching force in the ISCED 1 level.

United Kingdom (Scotland): The figures shown are approximations based on the Scheme of Salaries and conditions of Service (see notes on interpretation). There is no distinction between upper and lower secondary schools. Complete data on secondary schools are included in ISCED 2.

Notes on interpretation

Australia: Rules vary between the eight states and territories.

Table 4. **Requirements for pre-service training for new teachers**

Country	Type of school	Course structure	Duration	Teacher qualification ISCED-97	Notes
ISCED 0					
Australia	Pre-primary	Concurrent (generally)	3-4 years 2 years	5A 5B	Qualification depends on state. Ranges from post-secondary 2-year TAFE course (ISCED 5B, not common) in one state if class size is small, to 3-5 year university course (which the majority – at least 75% – of new teachers would have)
Austria	Pre-school education Kindergarten	Concurrent	5 years	3A	Pre-school education is not part of the public school system
Belgium	Kleuterschool	Concurrent	3 years	5B	
Czech Republic	Materska skola	Concurrent* Concurrent**	4 years* 3 years**	3A* 5B**	* A 4-year course completed with a *Maturita* examinations in secondary teacher training schools ** 3-year bachelor's course at university faculties of education
Denmark	Børnehave og børnehaveklasse	Concurrent	3.5 years	5B	
Finland	Pre-school education	Concurrent	5 years	5A	
France	École maternelle	Consecutive 4 years academic, 1 year pedagogical training	5 years	5A	
Germany	Kindergarten	Concurrent	3-4 years	5B	Pre-school education in Germany is not part of the public school system
Greece	Nipiagogeio	Concurrent	4 years	5A	
Hungary	Óvoda	Concurrent	3 years	5B	
Italy	Scuola materna	Concurrent	4 years	5A	Requirements are derived from D.P.R. 471 31/07/96 D.I. 10/03/97 which are now in force The former legislation is going to be progressively abolished
Netherlands	Basisonderwijs	Concurrent	4 years	5A	
Norway	Child care day institutions/kindergardens and grade 1 in primary education	Concurrent	3 years	5A	
New Zealand	Pre-school education	Concurrent Concurrent	3-4 years 3-4 years	5B 5A	
Portugal	Educação Pre-Escolar	Concurrent	4 years	5B	
Spain	Educación Infantil 0-3 years old 4-6 years old	 Concurrent Concurrent	 3 years	 4A or 5B 5A	
Sweden	Förskola, förskoleklass	Concurrent	3 years	5A	
Turkey	Pre-school education (3-5 years)	Concurrent	4 years	5A	
ISCED 1					
Australia	Primary school	Concurrent (generally)	3-4 years depending on state	5A	University 3-4 year education degree, or 3-year degree then 1-2 year postgrade education degree (total 4-5 years). Most states require specialisation in primary studies. Some states require registration with a Board of Teacher Education
Austria	Volksschule, Grundschule	Concurrent	3 years	5B	
Belgium	Lagere school	Concurrent	3 years	5B	
Czech Republic	I st. zakladni skoly	Concurrent	4-5 years	5A	General subjects, professional studies (education and psychology) including didactics and teaching practice at Faculties of Education
Denmark	Folkeskole	Concurrent	4 years	5A	
Finland	Peruskoulun ala-aste	Concurrent	4-5 years	5A	
France	École élémentaire	Consecutive 4 years academic, 1 year pedagogical training	5 years	5A	
Germany	Grundschule	Consecutive 3.5 years university level education (first phase), 2 years prepatory service (second phase)	5.5 years	5A	
Greece	Demotiko Skolio	Concurrent	4 years	5A	
Hungary	Általános iskola, 1-4, 5-6 grades	Concurrent	4 years	5B	
Ireland	National schools	Consecutive* Concurrent**	At least 4.5 years* 3 years**	5A* 5A**	Consecutive course for university graduates includes professional studies and teaching practice
Italy	Scuola elementare	Concurrent	4 years	5A	Requirements are derived from D.P.R. 471 31/07/96 D.I. 10/03/97 which are now in force The former legislation is going to be progressively abolished
Netherlands	Basisonderwijs	Concurrent	4 years	5A	
Norway	Primary education	Concurrent	4 years	5A	The general teacher education includes • Training in the main subjects including didactics • An in-depth study of 1-2 subjects relevant for teaching in primary or lower secondary school including didactics • ½ year of educational theory and practice • 18 weeks of supervised practice in schools
New Zealand		Concurrent Consecutive Consecutive	3-4 years 2 years 1-2 years	5A 5B 5A	Pre-requisite consecutive (2 years) Partial tertiary qualifications and relevant work experience Pre-requisite consecutive course (1-2 years) Degree qualification
Portugal	1st cycle of "basic education"* 1º ciclo do Ensino Basico 2nd cycle of basic education"** 2º ciclo de Ensino Basico	Concurrent* Concurrent/Consecutive**	4 years* 4-6 years**	5B* 5B**	

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Table 4. Requirements for pre-service training for new teachers *(cont.)*

Country	Type of school	Course structure	Duration	Teacher qualification ISCED-97	Notes
ISCED 1					
Spain	Educación Primaria	Concurrent	3 years	5A	
Sweden	Primary and lower secondary education provided on an uninterrupted basis	Concurrent	4-4.5 years	5A	
Turkey	Primary education (6-10 years age)* Primary education (11-13 years age)**	Concurrent* Concurrent**	4 years* 4 years**	5A* 5A*	
United Kingdom	Primary education	Concurrent* Consecutive**	3-4 years* 1 year**	5A 5A	* Concurrent full-time training combining curriculum, teaching training and educational studies and at least 2 years university level study of main subject ** Post-graduate Certificate in Education (PGCE), graduate status achieved prior to training
United States	Elementary education, including kindergarten for 5-year-olds	Concurrent	4 years	5A	
ISCED 2					
Australia	Lower secondary school	Concurrent (generally)	3-4 years, depending on state	5A	University: 3-4 year education degree; or 3 year degree then 1-2 year postgrade education degree (total 4-5 years). Most states require specialisation in certain subjects and/or secondary studies. Some states require registration with a Board of Teacher Education
Austria	Hauptschule* Polytechnische Schule** Allgemeinbildende höhere Schulen***	Concurrent* Concurrent** Consecutive***	3 years* 3 years** 5.5 years***	5B* 5B** 5A***	* For Allgemeinbildende höhere Schulen: Training at universities in two subjects, some practical experience during university training. In order to become qualified a mandatory period of practical training accompanied by pedagogical courses at In-service Teacher Training Colleges (Pädagogische Institute) is required. During this training that is lasting one school year the prospective teacher gives instruction in his/her subjects like an ordinary one, guided by an experienced teacher, belonging to the teaching staff of the school
Belgium	Middenschool of Secundaire school	Concurrent	3 years	5B	Teaching diploma Geaggregeerde voor het secundair onderwijs groep 1
Czech Republic	2 st. zakladni skoly	Concurrent	4-5 years	5A	Usually two subjects, general subjects, professional studies (education and psychology) including didactics and teaching practice at Faculties of education, philosophy, natural sciences, maths-physics, physical education and sport
Denmark	Folkeskole	Concurrent	4 years	5B	
Finland		Concurrent	5-6 years	5A	
France	Collège	Consecutive 4 or 5 years academic, 1 year pedagogical training	5 or 6 years	5A	6 years: training for teachers wishing to take the competitive examination for agrégation: special intensive preparation followed in the second year by teaching practice with responsibility for a class in a *lycée* and additional training where necessary
Germany	Primar/Sekundarstufe I* Alle oder einzelne** Schularten Sekundarstufe I	Consecutive 3.5-4.5 years university level education (first phase), 2 years preparatory service (second phase)	5.5 years 5.5-6.5 years	5A 5A	* Teacher career is possible for both primary and lower secondary level ** Teacher career at all or individual types of schools at lower secondary level
Greece	Gymnasio	Concurrent	4-5 years	5A	
Hungary	Általános iskola, 5-8/10 grades	Concurrent	4 years	5B	
Ireland	Secondary education Secondary schools Vocational schools Community and comprehensive schools	Consecutive	1 year	5A	1 year course to obtain the Higher Diploma in Education after the University Degree
Italy	Scuola media	Concurent/Consecutive*	6-8 years*	5A	University 4 to 6 years plus an individual post-graduate 2 years study Requirements are derived from D.P.R. 471 31/07/96 D.I. 10/03/97 which are now in force The former legislation is going to be progressively abolished
Netherlands	Voortgezet onderwijs	Concurrent	4 years	5A	Leraar 2e graad
Norway	Lower secondary education	Concurrent	4 years	5A	The general teacher education includes: • Training in the main subjects including didactics • An in-depth study of 1-2 subjects relevant for teaching in primary or lower secondary school including didactics • ½ year of educational theory and practice • 18 weeks of supervised practice in schools
New Zealand		Consecutive Concurrent	1 year 4-5 years	5A 5A	Consecutive course: Pre-requisite: Degree qualification with relevant subjects Concurrent course: Secondar-conjoint *i.e.* bachelor degree and teacher education at same time
Portugal	3rd cycle of "basic education" 3º ciclo do Ensino Basico	Concurrent/Consecutive	5-6 years	5A	
Spain	Educación Secundaria Obligatoria – ESO	Consecutive	5-7 years	5A	
Sweden	Primary and lower secondary education (6/7 to 16 years of age) provided on an uninterrupted basis	Concurrent	4-4.5 years	5A	
United Kingdom	Secondary education	Concurrent* Consecutive**	3-4 years* 1 year**	5A 5A	Concurrent full-time training combining curriculum, teaching training and educational studies and at least 2 years university level study of main subject Consecutive course: Post-graduate Certificate in Education (PGCE): graduate status achieved prior to training
United States	Junior High School or Middle School	Concurrent	4 years	5A	

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Table 4. **Requirements for pre-service training for new teachers** *(cont.)*

Country	Type of school	Course structure	Duration	Teacher qualification ISCED-97	Notes
ISCED 3 General education					
Australia	Upper secondary	Concurrent (generally)	3-4 years, depending on the state	5A	University. 3-4 year education degree; or 3 year degree then 1-2 year postgrade education degree (total 4-5 years). Most states require specialisation in certain subjects and/or secondary studies. Some states require registration with a Board of Teacher Education. Requirements of lower and upper secondary school teachers are generally the same.
Austria	Allgemeinbildende höhere Schulen	Consecutive	5.5 years	5A	Training at universities in two subjects; some practical experience during university training. In order to become qualified a mandatory period of practical training accompanied by pedagogical courses at In-service Teacher Training Colleges (Pädagogische Institute) is required. During this training that is lasting one school year the prospective teacher gives instruction in his/her subjects like an ordinary one, guided by an experienced teacher, belonging to the teaching staff of the school.
Belgium	Secundaire school	Concurrent or consecutive Concurrent*	4-5 years 3 years*	5A 5B*	Academic training plus teacher training: either during the two last years of their university studies, parallel to the degree courses (or the last year only) or as a 1-year full-time course after completion of degree. * Teaching diploma Geaggregeerde voor het secundair onderwijs groep 1 is also applicable in the first two years of upper secondary education in the Flemish Community.
Czech Republic	Gymnasium	Concurrent	5 years	5A	Usually two subjects, general subjects, professional studies (education and psychology) including didactics and teaching practice at Faculties of education, philosophy, natural sciences, maths-physics, physical education and sport.
Denmark	Højere Forberedelseseksamen (HF) Højere handelseksamen Højere teknisk eksamen	Consecutive	5.5 years	5A	University degree (normally in two subjects): 5 years 5 months course in education theory, education studies and at least 120 hours teaching practice in an upper secondary school. Pædagogikum
Finland		Concurrent	5-6 years	5A	
France	Lycée d'enseignement général et technologique	Consecutive, 4 or 5 years academic, 1 year pedagogical training	5 or 6 years	5A	6 years: training for teachers wishing to take the competitive examination for *agrégation*: special intensive preparation followed in the second year by teaching practice with responsibility for a class in a *lycée* and additional training where necessary.
Germany	Gymnasium general subjects	Consecutive 4.5 years university level education (first phase), 2 years preparatory service (second phase)	6.5 years	5A	General education subjects at upper secondary level
Greece	Eniaio Lykeio	Concurrent	4-5 years	5A	
Hungary		Concurrent/Consecutive	5 years	5A	
Ireland	Secondary education Secondary schools Vocational schools Community and comprehensive schools	Consecutive	1 year	5A	1 year course to obtain the Higher Diploma in Education after the University Degree.
Italy	Upper secondary education Classical, scientific, artistic Liceo. Technical and vocational institutes	Concurrent/Consecutive	6-8 years	5A and 2 years training on teaching	University 4 to 6 years plus an individual 2 years post-graduate study. Requirements are derived from: D.P.R. 471 31/07/96 D.I. 10/03/97 which are now in force. The former legislation is going to be progressively abolished.
Netherlands	Voortgezet onderwijs 'Leraar 1e graad'	Consecutive	1 year	5A	1 year university course after academic degree in one discipline. Part-time 3 years
Norway		Consecutive	4-7 years	5A	I. Special subjects – two varieties: 1. In subjects like for instance arts and crafts, sports, music, dance and drama: • 3-4 years consecutive study in specialisation subjects including didactics • An in-depth study of at least one subject among subjects mentioned above including didactics • ½ year study of educational theory and practice • 12-14 weeks of supervised practice in schools 2. In general academic subjects: • General academic subjects at university or college (normally 4-6 years) • 1-year programme in educational theory, didactics and practice including 12-14 weeks of supervised practice in schools II. Technical and vocational teacher education – three varieties: 1. Includes: • higher education in technical or vocational subjects • 2 years of relevant work experience • 1-year programme in educational theory and practice including 12-14 weeks of supervised practice in school 2. Includes: • A trade/craft certificate • 2 years of relevant work experience • 2 years theoretical craft studies • 1-year programme in educational theory and practice including 12-14 weeks of supervised practice in schools 3. Includes: • A trade/craft certificate • 2 years of relevant work experience • A 3-year teacher education programme including: – a vocational breadth element including didactics – An in-depth vocational element including didactics – ½ year of educational theory and practice – 12-14 weeks of supervised practice in school and industry where relevant trades are taught

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Table 4. Requirements for pre-service training for new teachers *(cont.)*

Country	Type of school	Course structure	Duration	Teacher qualification ISCED-97	Notes
ISCED 3 General education					
New Zealand		Consecutive Concurrent	1 year 4-5 years	5A	Consecutive course. Pre-requisite: degree qualification with relevant subjects Concurrent course: Secondar conjoint *i.e.* bachelor degree and teacher education at same time
Portugal	Ensino Secundario Geral (15 to 18 years of age)	Concurrent/Consecutive	5-6 years	5A	
Spain	Bachillerato	Consecutive	5-7 years	5A	
Sweden	Gymnasieskola* Group I (general subjects) year 7, 8, 9 in compulsory school and gymnasia**	Concurrent* Consecutive**	4.5-5.5 years* 4.5-5.5 years**	5A* 5A**	Teachers in general subjects
Turkey	Secondary education (14-16 years)	Consecutive Consecutive Concurrent	3.5 + 1.5 years 4 + 1.5 years 4 years	5A 5A 5A	
United Kingdom	Secondary education	Concurrent** Consecutive*	3-4 years* 1 year**	5A 5A	Concurrent full-time training combining curriculum, teaching training and educational studies and at least 2 years university level study of main subject. Future secondary teachers only the application of the students' main subject(s) in secondary schools, and at least 24 or 32 weeks practical and teaching experience in schools. Post-graduate Certificate in Education (PGCE), graduate status achieved prior to training: one year full-time intensive training comprising curriculum, teaching training and educational studies
United States	High school	Concurrent	4 years	5A	
ISCED 3 Vocational education					
Australia	Vocational education and training (VET) (ISCED 2 and 3)				Teachers should hold a certificate at least one level higher than the level of the course they are teaching. State requirements vary only slightly because each must recognise teachers from other states. Each training package sets out the "competencies" and industry experience required of assessors of the subject. The requirements of teachers themselves are set by each individual training organisation ("RTO"). These RTOs are registered by states and recognised nationally. The minimum is generally experience plus an ISCED 4 Workplace Trainers' and Assessors' Certificate. States also differ due to their industrial relations systems. VET teachers generally have a relevant qualification, experience in the area in which they are teaching, and an ISCED 4 VET teaching certificate.
Austria	Berufsbildende mittlere und hohere Schulen Teachers instructing subjects of general education)*	Consecutive*	5.5 years*	5A*	Engineering and law: the 2 years only refers to the pedagogical training. At least 6 years of studying are required for obtaining a university degree in engineering. For a degree in law it is at least 4 years. Technical subjects: the actual teacher training lasts 3 years and follows ccompletion of an apprenticeship training and a foreman course (*Werkmeisterschule*) plus at least six years of practice in relevant profession. Wordprocessing, shorthand and domestic science: The 3-years course is following the Matriculation Examination (*Reifeprüfung Berufsschule*). In order to be admitted to the teacher training for subject group I (general and business education) and subject group II (technical subjects – theory), a Matriculation Examination is required plus at least two years of experience in relevant profession. For subject group III (technical subjects – practice) a masters craftsman title (*Meisterprufung*) plus at least six years of practical experience in relevant profession are required.
	Teachers not instructing subjects of general education**				
	– Business studies and management	– Concurrent	4.5 years	5A	
	– Engineering and Law	– Consecutive	2 years	5A	
	– Technical subjects	– Consecutive	3 years	5B	
	– Word processing, shorthand and domestic science	– Consecutive	3 years	5B	
	Berufsschule (part-time vocational colleges)***	Consecutive***	3 years***	5B***	
Belgium		Concurrent/consecutive Concurrent*	4-5 years 3 years*	5A 5B*	Academic training plus teacher training: either during the two last years of their university studies, parallel to the degree courses (or the last year only) or as a 2-year part-time course after completion of degree. * Teaching diploma Geaggregeerde voor het secundair onderwijs groep I is also applicable in upper technical secondary education (ISCED 3C vocational/technical) and in upper vocational secondary education (ISCED 3C vocational/teachnical) in the Flemish Community
Czech Republic	Stredni odborne skoly General subjects* Technical subjects**	Concurrent* Concurrent**	5 years* 5-6 years**	5A* 5A**	* General subjects Usually two subjects, general subjects, professional studies (education and psychology) including didactics and teaching practice at Faculties of education, philosophy, natural sciences, maths-physics, physical education and sport. ** Professional studies (education and psychology) including didactics and teaching practice at technical universities, universities of agriculture, faculties of medicine, fine arts, etc.
Denmark	Erhvervsuddannelse	Consecutive	3-4 years upper sec Vocational education + 500-600 hours educational and pedagogical course	3C	To become a vocational teacher you normally have a commercial or technical education (skilled worker) supplemented by relevant further education. Relevant work experience for at least 2 to 5 years. The 500-600 hours educational and pedagogical course must be taken within the first 2 years of employment at a vocational school.
Finland		Consecutive	1 year	5A	Entrance requirements: Higher vocational diploma or Master's degree from university plus work experience (2-3 years)
France	Lycée professionel	Consecutive 4 years academic, 1 year pedagogical training	5 years	5A	

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Table 4. Requirements for pre-service training for new teachers *(cont.)*

Country	Type of school	Course structure	Duration	Teacher qualification ISCED-97	Notes
ISCED 3 Vocational education					
Germany	Vocational schools	Consecutive 4.5 years university level education (first phase), 2 years preparatory service (second phase)	6.5 years	5A	Vocational subjects at the upper secondary level (The instructors responsible for training in the workplace under the "dual system" of vocational training are not mentioned in this document.)
Greece		Concurrent (university)* Consecutive (TEE)** Concurrent (ASETEM)***	4-5 years	5A	
Hungary		Concurrent/Consecutive	5 years	5A	
Ireland	Secondary education Secondary schools Vocational schools Community and comprehensive schools	Consecutive	1 year	5A	1 year course to obtain the Higher Diploma in Education after the University Degree.
Italy	Upper secondary education, Classical, scientific, artistic Liceo, Technical and vocational institutes	Concurrent/Consecutive	6-8 years	5A and 2 years training on teaching	University 4 to 6 years plus an individual 2 years post-graduate study Requirements are derived from D.P.R. 471 31/07/96 D.I. 10/03/97 which are now in force The former legislation is going to be progressively abolished
Netherlands					Teacher training and requirements for general academic subjects are the same for teachers at ISCED 2, 3 general and 3 vocational. There are no national requirements for teachers teaching practical subjects
Norway		Consecutive	3 years	5A	The main route to become a technical and vocational teacher is: commercial or craft certificate, relevant work experience for at least 2 years, 2 years theoretical training and 1 year practical and theoretical training
New Zealand	–	–	–	–	
Portugal	Professional schools	Concurrent/Consecutive	4-6 years	5A/5B	For teaching socio-cultural and scientific components subject matters, teachers need tertiary education. For the technical/technological training, external professionals are contracted
Spain	Secondary Education Schools – Institutos de Educación Secundaria Specific Vocational Training (intermediate level) – Ciclos Formativos de Formación Profesional de Grado Medio	Consecutive	3-6 years + 1 year	5A	For teaching certain subject matters teachers need a Bachelor's Degree (3 years of University College) and for teaching other subjects a Master's Degree is needed (4-6 years of University). Both must have a Post-Graduate Certificate in Education of approximately one year of teacher training. According to the needs of the system and for certain areas or subjects, external professionals can be contracted as "specialist teachers"
Sweden	Gymnasieskola	Consecutive	1.5-2 years + 1 year	5B	Teachers in vocational subjects
Turkey	Secondary Education (14-16 years age)	Consecutive Consecutive Concurrent	3.5 + 1.5 years 4 + 1.5 years 4 years	5A 5A 5A	

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France: ISCED 2 and ISCED 3g: From 15 to 20 hours, depending on the category of teachers and on the subject taught. ISCED 3v/p: From 18 to 23 hours, depending on the subject taught.

Mexico: There is no formal requirement in Mexico regarding how much time the teachers must spend in non-teaching activities per week.

New Zealand: There is no formal policy defining how much time should be spent on teaching time as opposed to non-teaching time. Rather requirements relate to the number of half-days that a school must be open for instruction.

Sweden: Salaries and working conditions (*e.g.*, teaching time/time in other duties) are decided through local negotiations at the school level.

United Kingdom (Scotland): According to the Scheme of Salaries and Conditions of Service document, the working hours of teachers shall include 27.5 hours per week in schools subject to a maximum class contact time of 25 hours in primary schools, 23.5 hours in secondary schools, 22.5 hours in special schools and units. The working hours of teachers shall also include an additional maximum of up to 30 hours in any school year for the purpose of parent meetings, the total to include preparatory work and provision of travelling time, up to a maximum of six meetings within the pupil year. There will also be annual provision of an additional maximum of up to 50 hours within the working year for planned activities related to the wider educational needs of the school (*e.g.*, curricular development; in-service training; inter-school liaison; professional development and participation in meetings with colleagues).

Notes on methodology

France: Length of the school year: 34.2 weeks (ISCED 0, 1 and 2) or 33.2 weeks (ISCED 3).

The days in which the school is closed for festivities and celebrations are excluded from the calculation of the length of the school year.

Germany: The teaching hours vary between the "Länder". Teaching time for Germany is the weighted average per ISCED-level. Only teachers for theoretical instructions are included in ISCED 3 vocational.

Greece: For ISCED 1, 25 teaching hours/per week, for ISCED 2,3, 21 teaching hours/per week.

A conversion factor is used: 0.8 (= $\frac{48}{60}$) concerning the number of hours a teacher teaches per day.

In addition, the examinations period (about 2 weeks for ISCED 2, 3), Christmas and Easter holidays (about 4 weeks), and summer holidays (about 8 weeks), are not included in calculating the number of weeks a teacher teaches per annum.

Japan: There is no statutory requirement for teaching time.

New Zealand: ISCED1 and ISCED2 based on 197 days per year at 5 hours per day (25 hours per week). ISCED3 based on 190 days per year of 5.2 hours with an estimated 4.6 hours teaching time (23 hours per week).

Spain: The time for breaks, festivities and holidays is excluded. In ISCED 0 and ISCED 1 the school year consists of 35 teaching weeks (175 days/year) in public and government dependent schools. Teaching periods correspond to 60 minutes. In ISCED 2 and ISCED 3 the school year consists of 33 teaching weeks (165 days/year) in public and government dependent schools. Teaching periods correspond to 50 minutes.

Sources

Australia: Victorian and South Australian Education Departments.

Austria: Staff code.

Belgium (Flemish Community): De Corte, G., Janssens, G., & Heyvaert, J. (1997), *Onderwijs zakboekje* (1997-1998), Kluwer Editorial: Diegem.

Belgium (French Community): *Memento de l'Enseignement*, Kluxer Editions juridiques Belgique, Edition 1997-1998.

Finland: Collective agreement on terms of work.

France: ISCED 0 and 1: formal requirement ("obligations de service"). ISCED 2 and 3: "Enquête sur les services des enseignants du second degré public du ministère de l'Education nationale".

Greece: National legislation – Ministry of National Education and Religious Affairs.

Hungary: Public Educational Act, 1993 (with the Amendement of Public Education Act, 1996).

Ireland: Department of Education and Science, Dublin.

Italy: Law: D.P.R. 417/74 L.: 476/86 D.P.R. 399/88 C.C.N.L. 21.07.95 – 12.07.96.

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Korea: *The School Curriculum of the Republic of Korea*, 1992, by the Ministry of Education, *Statistical Yearbook of Education* 1998, by the Ministry of Education.

Mexico: Secretariá de Educación Pública. "Programa de Educación Preescolar". México. Septiembre 1992; Secretariá de Educación Pública. "Plan v Programas de Estudio 1993. Educación Básica Primaria". México.; Secretariá de Educación Pública. "Plan v Programas de Estudio 1993. Educación Básica Secundaria". México.

Netherlands: CAO'96, WBO, WVO, WBVE.

New Zealand: The Education Act 1989. Based on mid 90's survey.

Norway: Agreements between the Ministry of Education and the Teachers'Unions on working hours and working conditions.

Portugal: Statute of the Teaching career; Collective work contract.

Turkey: Law documents.

United Kingdom (England): School Teachers' Pay and Conditions Document 1999.

United States: Schools and Staffing Surveys (SASS), 1993-94.

INDICATOR D4: Total intended instruction time for pupils in lower secondary education

■ General notes

Notes on methodology

List of possible subjects that are taught under the headings used in Indicator D4 (non-exhaustive enumeration, derived from notes provided by member countries):

Reading and writing in the mother tongue: reading and writing in the mother tongue; reading and writing in a second "mother tongue"; reading and writing in the tongue of the country as a second language (for non natives); language studies; public speaking; literature.

Modern foreign languages: foreign languages other than Latin, classical Greek, etc.

Social studies: social studies; community studies; contemporary studies; economics; environmental studies; geography; history; humanities; legal studies; liberal studies; studies of the own country; social sciences; ethical thinking; philosophy.

Arts: Arts; music; visual arts; practical art; drama; performance music; photography; drawing; creative handicraft; creative needlework.

Mathematics: mathematics; mathematics with statistics; geometry.

Science: science; physics, physical science; chemistry; biology, human biology; environmental science; agriculture/horticulture/forestry.

Technology: orientation in technology, including information technology; computer studies; construction/surveying; electronics; graphics and design; home economics; keyboard skills; word processing; workshop technology / design technology.

Religion: religion; history of religions; religion culture.

Physical education: physical education; gymnastics; dance; health.

Vocational skills: vocational skills (preparation for specific occupation); technics; domestic science; accountancy; business studies; career education; clothing and textiles; polytechnic programmes; secretarial studies; tourism and hospitality; sloyd (handicraft).

Other: Subjects that cannot be classified under one of the above headings.

■ Notes on specific countries

Coverage

Australia: The implementation of curriculum in Australia is determined by each state or territory administration. The data supplied should be considered as indicative only and relate to the public school system only.

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Belgium (Flemish Community): There are no legal regulations concerning the exact number of instruction hours per specific subject within the compulsory curriculum.

Belgium (French Community): "Other" stands for instruction time at the discretion of the school. In can include additional instruction time for subjects mentioned in other categories.

Czech Republic: The school director (head teacher) decides about the division of the number of taught hours per subjects in order to ensure the minimum lessons for each subjects during four years (grades 6 through 9, or ages 12, 13, 14, and 15).

Denmark: "Other" subjects include class time – one extra weekly lesson for the class teacher.

Finland: Technology studies for 12 years olds are included in other subjects.

France: The data are for general instruction.

Germany: "Other" subjects include Technology, Religion, vocational skills and old languages (*e.g.*, Latin).

Greece: "Other" subjects include Ancient Greek, Literature, Civil Education, and Domestic Economics.

Hungary: Earth and Environment (geography, environmental science, and environmental studies) are included in the knowledge area of Our Earth and Environment.

Ireland: Mandatory subjects are Irish, English, Mathematics, History, Geography, Civics plus not less that two subjects from the following list of approved subjects: Latin, Greek, Spanish, Italian, Science, Technology, Home Economics, Music, Art-Craft-Design, Materials Technology, Metal Work, Technical Graphics, Business Studies, Typewriting, Environmental and Social Studies.

Japan: Modern foreign languages are electives. Arts are divided into arts and music.

Korea: The national curriculum consists of compulsory subject matters and a flexible part – elective subject matters and extracurricular activities. Elective subjects include Chinese characters, Computer Science, Environmental Studies and other elective courses. At least 34 lessons should be allocated to these elective subject matters. Extracurricular activities comprise student government activities, self-development activities, social-service activities and event activities. "Other" subjects include Moral Education (68 lessons) (compulsory).

Netherlands: "Other" subjects include social and life skills ("verzorging").

Norway: "Other" subjects include Music, Domestic science / Home Economics, Class council and Students council.

Spain: One tutorial class per week is compulsory for all 13 and 14 years old students.

United Kingdom (England): "Other" subjects include combined Arts/Humanities/Social Studies, PSE and General Studies.

Notes on interpretation

Germany: The intended curriculum in Germany varies between "Länder". In addition, some discretion is left to schools. The agreement by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder concerning the types of schools and courses of education in lower secondary level lays down a framework schedule for grades 5-9/10, requiring certain core subjects in every type of school and course of education (*e.g.* German, mathematics, one foreign language, natural science). Grade 6 usually has 28 (minimum) periods per week, grade 7 and 8 have 30 (minimum). The maximum is 34 periods per week (45 min.).

The numbers of hours (60 min.) per subject for Germany is an average based upon the numbers of lesson hours per week for years 6, 7 and 8 – except special schools ("Sonderschulen"). (Total instruction time covered by subject matters of the intended curriculum can vary between 790 and 959 hours.)

Hungary: In 1995/96 an old curriculum, prepared in 1978, was still valid legally, although schools have had the opportunity to make individually formed curricula from the late 80s. This has led to a divergence between the national curriculum of 1978 and the practice of teaching in the 1995/96 school year. A new curriculum, the National Core Curriculum, will be introduced from 1 September 1998 at grades 1 and 7.

Mexico: Theoretically, a 14 years old student must be in the third grade of the lower secondary school (*i.e.* in ISCED 2 level). According to the intended curriculum for this grade of the lower secondary school, the students have a compulsory subject of 120 lessons per year (50 minute each) defined by the educational authorities of each state of the Mexican Republic, and based on their own needs.

New Zealand: As of July 1998, the status of the seven national curriculum statements was as follows: 1) Gazetted: Mathematics, Science, English; 2) Finalised but not gazetted: Technology, Social Studies; 3) Not yet finalised: Health and Physical Education, Arts. Curriculum legislation was amended at the end of 1998 (aspects of Education Legislation Amendment Act, 1998) to allow for more precision in legislating the curriculum statement (*e.g.*, Maori medium

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documents applying only to Maori medium schools and classes in schools) and to allow gazetting of an overreaching policy statement on curriculum and assessment.

Norway: 1999-2000 is the last year of the implementation of the reform in compulsory education in Norway. Compulsory education is now extended to 10 years.

Portugal: Students have to choose one of the following three subjects: Second foreign language, Musical education, Technological education. Furthermore, instead of "Religion" students may choose "Social and personal development". Students ages 12-14 attend the compulsory school education and are submitted to the same instruction time.

Spain: There is a minimum time that must be dedicated to the compulsory intended curriculum in all Autonomous Communities in Spain, but each Community has the right to augment these minimum time requirements so that students have different timetables in different Communities. All figures in the table are averages of the number of hours per year devoted to each subject in all the Autonomous Communities, weighted by the number of students in each of them.

Twelve year-old students can choose between *Religion* or *Socio-cultural activities* and 13 and 14 year-olds between *Religion* and *Society, Culture and Religion*. However, the time to be devoted to one of the two subjects is compulsory. Although the time is compulsory, the subject is optional, so it has been computed in the flexible part of the curriculum.

Sweden: There is no stipulated time for lessons for the grades enrolling the majority of 12, 13 and 14 year-olds. Hence instruction time varies depending on subject.

Turkey: The intended curriculum is defined by Law in Turkey and only the elective part changes from school to school. However students have the right to choose a lesson between two or three subjects.

United Kingdom (Scotland): The intended curriculum indicated is not compulsory but recommended. The flexibility element can be used for lessons in the existing subjects or vocational or others.

United States: Although the curriculum is 100% prescribed it should be noted that students still can choose. Arts education, for example, offers both arts and music.

Notes on methodology

France: Each school has to decide the instruction time per subject at the beginning of the school year, between the minimum and the maximum set by the law. This choice must lead to a minimum amount of hours per week (25/30). Thus, it is impossible to know precisely the number of hours per subject for each school.

Italy: Data on intended instruction time are an average across two types of schools: 75 per cent pupils attend 1 020 hours and 25 per cent attend 1 360 hours. The flexible part is compulsory only for pupils who have chosen the longer pattern (so called "tempo prolungato").

Spain: Some 14 year old students are in the new education system and others are still in the old one. The data on the percentage of them in one or the other systems is not available, so only data corresponding to the new system is reported. 13 and 14 years old students have a certain number of hours per year for optional subjects. These subjects vary from one school to another. The time for these subjects is added to the one devoted to Religion or its alternative subject in the table (flexible part). Time devoted to breaks, festivities and holidays has been deducted.

United Kingdom (England): In England there are no statutory guidelines as to the amount of time to be spent in lessons overall or in lessons on specific subjects. 1996/97 Survey data has been used to give estimates of the proportion of the school year spent on each subject for pupils (mainly) aged 12, 13 and 14.

Sources

Australia: Data collected from four of the 8 state/territory administrations.

Belgium (Flemish Community): Ministerial Order of October 22, 1992.

Belgium (French Community): Circulaire ministérielle de mai 1997.

Greece: Ministry of National Education and Religious Affairs, National Legislation, Decree 447/1993 and 78/1997, Sercular 12/3773/19-6-1997, National Government Bulletin 185/A, 65/A/2-5-97.

Ireland: Department of Education and Science. Regulations.

Japan: Chugakko-Gakushu-Shido-Yoryo (The Course of Study in Lower Secondary Schools), 1989, Ministry of Education, Science, Sports and Culture.

Korea: Middle School Curriculum, 1992, Ministry of Education.

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Mexico: Secretaría de Educación Pública. "Plan v Programas de Estudio 1993. Educación Básica Secundaria".

Netherlands: Law on Secondary Education.

New Zealand: New Zealand Curriculum Framework 1993; Education Legislation Amendment Act 1998.

Norway: National curriculum.

Portugal: National curriculum – LAL Document.

Turkey: Law documents.

United Kingdom (England): Secondary Schools Curriculum and Staffing Survey 1996/97.

United States: Schools and Staffing Surveys (SASS), 1993-94.

INDICATOR D5: Student absenteeism

■ General notes

For detailed notes and information see Table B.11 in M.O. Martin, V.S. Mullis, E.J. Gonzalez, T. A. Smith, and D.L. Kelly. (1999), *School Contexts for Learning and Instruction, IEA's Third International Mathematics and Science Study,* TIMSS International Study Center, Boston College.

INDICATOR D6: Decision-making about the curriculum in lower secondary education

■ General notes

The indicator on locus of decision-making in lower secondary education is based on data from the 1998 OECD/INES locus of decision making questionnaire and refer to the school year 1997/98. For detailed notes, see Annex 3, Indicator E5 in the 1998 edition of *Education at-a Glance*.

INDICATOR D7: Computers in schools and their use

■ General notes

Data are based on the Second Information Technology in Education Study (SITES), that was conducted by the International Association for the Evaluation of Educational Achievement (IEA).

The coordination center of SITES was located at the University of Twente in the Netherlands. The prime investigator was Dr. Willem J. Pelgrum. For detailed notes and information, see Pelgrum and Anderson (Eds.), ICT *and the Emerging Paradigm for Life Long Learning: a worldwide educational assessment of infrastructure, goals, and practices,* Amsterdam: IEA, 1999.

INDICATOR E1: Labour force participation by level of educational attainment

See notes on Indicator A2.

INDICATOR E2: Education and work among the youth population

Sources: See Table 5.

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Table 5. **Sources**

	Year	Data source	Reference period for reported data	Frequency of data collections	Part-time definition	Primary sampling unit	Sample size	Non-response rate	Other comments
Australia	1998	Labour Force Survey. Survey of Transition from Education to Work. May 1998		1 Week	Less than 35 hours per week	Individual	49 700 individuals	3 4	
Belgium	1998	Labour Force Survey	May and June 1998	1 Month	Subjective definition by the respondent	Household	35 000 households	+/– 10%	
Canada	1998	Labour Force Survey	January to March 1998	1 Week	Less than 30 hours per week	Household	58 000 households	Approximately 5%	
Czech Republic	1998	Labour Force Survey	1st quarter 1998	1 Month		Household	28 000 households	Unknown	All data established by the LFS were weighted by frequency of the individual age groups of men and women. The frequency also reflects data on natural changes in the population with time and on the age structure of migrants in 1997
Denmark	1997	*a)* Register of educational attainment of population *b)* Register of labour force and unemployment	*a)* 1997 (1 October 1995) *b)* 1997 (end of November 1996)	Not reported					
Finland	1998	EU-Labour Force Survey, Spring 1998	March to May 1998	1 Month	Respondent's answer	Individual	19 920 individuals	14 20%	
France	1998	Labor Force Survey	March 1998	Not reported	Specified in contract between employer and employee		75 000	2%	
Germany	1998	Labour Force Survey	20 April to 26 April 1998	1 Week	Less than 30 hours per week	Household	0 45 % of households		
Greece	1997	Labour Force Survey, National Statistical Service of Greece	One week in the second quarter of the year	1 Week	The definition derives from the definitions used in LFS. Work is considered part-time or full-time according to subjective definition by the respondent	Household	61 679 households	Nearly 5 % of the total surveyed households	The available data 97 for "participants" follow ISCED -76 as they were provided by the National Statistical Service.
Italy	1998	Labour Force Survey	July 1998	1 Month		Household	74 000 households	About 2%	
Netherlands	1998	Labour Force Survey	1998	1 Year	Less than 30 hours per week	Household	121 000 households	0 47	
Portugal	1988	Labour Force Survey	Quarterly means 1988	1 Week			20 000 households	10%	
Spain	1998	Labour Force Survey	January to March 1998	Other (not specified)	Less than 35 hours per week	Household	60 000 households per quarter	10% (7% absences and 3% refusals)	
Sweden	1998	Labour Force Survey	January to March 1998	1 Week		Individual	18 000/month = 54 000		
Switzerland	1998	Labour Force Survey	April to June 1998	1 Month	Less than 30 hours per week	Household	19 159	14 70%	Apprentices have a contract that is limited in time. They are not counted as people with a temporary job.
Turkey	1998	Household Labour Force Survey	Bi-annual	1 Week	Less than 30 hours per week	Household	15 000 households in each survey	About 10%	
United States	1997	1997 Current Population Survey: October	October	1 Year	30 hours or less per week	Individual (it is a household Survey but includes the individual level)	60 000 households, 94 000 persons age > = 15, 28 000 children < = 14		ISCED 2 = grade 7-9, ISCED 3 = grade 10-12, ICSED 5B/5A/6 = grade 13+

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INDICATOR E3: Specific situation of the youth population

General notes

The data used in order to calculate the ratio of part-time employed to total employed in Table E3.1 are extracted from OECD *Employment Outlook, edition* 1999.

Sources: See notes on Indicator E2.

INDICATOR E4: Expected years in education and work between the ages of 15 and 29

Sources: See notes on Indicator E2.

INDICATOR E5: Earnings and educational attainment

Sources: See Table 6.

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Table 6. **Sources**

	Data source	Reference period for reported data	Frequency of data collections	Primary sampling unit	Sample size	Non-response rate
Australia	Survey of Education and Training	1 week, March to April 1997	Week	Household	22 000 households	Not reported
Canada	Survey of Consumer Finances	1997	Calendar year	Household	Approximately 46 000 households	Approximately 16% non-response rate
Czech Republic	Microcensus 1996	1998	Calendar year	Household	28 148 households	Not reported
Denmark	*a)* Register of personal income *b)* Register of educational attainment of the population	*a)* End of 1997 *b)* October 1997	Calendar year	Not reported		Not reported
Finland	The Register-based Employment Statistics	Last seven days in 1996	Calendar year	Not reported		Not reported
France	Labour Force Survey	1998	Month	Household		7%
Germany	German Socio-economic Panel	1997	Other 12-month period	Household		Not reported
Hungary	Individual salary and earnings of employees	May 1999	Month	Not reported		Not reported
Ireland	European Community Household Panel, Living in Ireland Survey	1997	Calendar year	Household		Not reported
Italy	Banca d'Italia: "I bilanci delle famiglie italiane nell'anno 1995"	1995	Calendar year	Household	8 135 households	Not reported
Netherlands	Structure of Earnings Survey 1996	1996	Calendar year	Not reported	Due to matching of three sources, sample size is not exactly known. The final database of the structure of earnings survey contains information of about 146 000 employees. The population is 5.869 million employees.	Not reported
Norway	Based on Labour Force Survey and Income Tax Register	Labour Force Survey 2nd quarter 1997, Income Tax Register 1997	Calendar year	Individual	24 000 individuals	Not reported
New Zealand	Household Economic Survey	April 1997 to March 1998	Other 12-month period	Household	2 876 households	Around 20%
Portugal	List of Personnel	October 1997	Month	Not reported		Not reported
Spain	European Household Panel (Second Wave)	1995	Other 12-month period	Household	6 522 households, 23 179 individuals	Not reported
Sweden	National income register	1997	Calendar year	Not reported		Not reported
Switzerland	Labour Force Survey	April to June 1998	Month	Household		14.70%
United Kingdom	UK Labour Force Survey	Spring 1998	Week	Household	Approximately 24 000 households	Approximately 6%
United States	1998 March Current Population Survey	March 1998	Other 12-month period	Individual. It is a household Survey but includes the individual level.		Not reported

Note: All data refer to income from work before taxes.

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INDICATOR F1: Mathematics achievement of students in the 4th and 8th grades

Data are based on the Third International Mathematics and Science Study (TIMSS) that was undertaken by the International Association for the Evaluation of Educational Achievement IEA in the school year 1994/95. For details notes see Annex 3 in the 1997 edition of *Education at a Glance*.

INDICATOR F2: Differences in students' attitudes towards science in the 4th and 8th grades

See notes on Indicator F1.

For standard errors see Table 7.

Table 7. **Standard errors for Table F2.2 (1995)**

	Boys				Girls			
	Strongly positive	Positive	Negative	Strongly negative	Strongly positive	Positive	Negative	Strongly negative
Australia[1]	4.5	3.8	7.4	9.4	4.4	3.8	7.1	10.4
Austria[1]	5.1	5.7	5.6	10.3	6.5	4.1	5.0	9.9
Canada	5.9	5.7	6.7	8.5	3.1	4.4	5.3	7.5
Czech Republic	4.9	3.7	5.9	7.4	4.9	3.9	6.2	12.2
England[2]	5.2	5.7	7.6	9.4	4.3	4.0	8.8	10.4
Greece	3.5	6.6	13.0	13.7	3.6	4.6	9.6	8.9
Hungary[1]	4.9	4.7	5.0	11.4	4.9	4.1	6.5	13.4
Iceland	5.9	7.3	8.2	9.3	5.0	5.6	11.1	14.4
Ireland	4.9	4.6	5.0	9.4	7.1	4.8	7.1	10.9
Japan	2.5	2.6	6.0	16.5	2.9	2.5	4.2	15.1
Korea	2.9	3.1	6.6	14.7	3.5	2.7	6.6	11.8
Netherlands[1]	4.6	5.2	5.4	6.4	5.2	4.8	6.4	9.9
New Zealand	6.9	9.5	10.0	12.1	5.6	6.3	9.9	11.5
Norway	5.7	5.6	9.2	9.4	4.7	4.3	8.8	12.8
Portugal	4.1	6.3	14.0	11.3	4.0	5.4	21.1	10.1
United States	3.6	4.8	6.7	9.5	3.2	4.7	6.4	9.4
Country mean	**2.0**	**2.0**	**3.6**	**5.0**	**1.8**	**2.0**	**3.3**	**5.3**

1. Countries met TIMSS sampling requirements only partially.
2. Countries did not meet TIMSS sampling requirements.

Source: International Association for the Evaluation of Educational Achievement (IEA)/Third International Mathematics and Science Study (TIMSS), 1994-1995.

INDICATOR F3: 4th- and 8th-grade students' beliefs about performing well in mathematics and achievement in mathematics

See notes on Indicator F1.

For mean mathematics achievement of 8th-grade students, by gender and beliefs about what is important for success in mathematics, see Table 8.

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Table 8. **Mean mathematics achievement of 8th-grade students, by gender and beliefs about what is important for success in mathematics (1995)**

		Natural ability		Good luck		Hard work		Memorization	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Australia[2]	Agree	527	530	495	494	532	535	524	529
	Disagree	538	542	547	551	513	522	545	544
Austria[2]	Agree	551	542	523	522	538	531	518	505
	Disagree	527	522	553	540	564	555	563	554
Belgium (Fl.)[1]	Agree	562	560	532	539	564	564	558	559
	Disagree	567	578	573	576	562	590	571	575
Belgium (Fr.)[2]	Agree	530	523	491	492	530	526	530	526
	Disagree	534	531	544	536	534	533	537	527
Canada	Agree	524	525	498	497	522	526	513	514
	Disagree	534	537	539	541	554	565	539	542
Czech Republic	Agree	574	556	557	546	559	549	540	525
	Disagree	563	563	585	577	608	607	592	580
Denmark[2]	Agree	514	496	487	465	511	491	509	489
	Disagree	492	487	524	506	522	519	519	503
England[1]	Agree	508	502	461	464	506	504	492	492
	Disagree	517	509	526	520	548	517	534	518
France	Agree	535	537	521	514	541	534	544	538
	Disagree	551	536	550	542	556	557	528	510
Germany[2]	Agree	516	519	480	484	503	500	497	491
	Disagree	509	499	524	519	539	550	529	526
Greece[2]	Agree	488	481	459	447	490	476	487	474
	Disagree	496	478	504	491	498	520	517	506
Hungary	Agree	539	539	516	515	529	532	510	510
	Disagree	539	532	570	565	571	568	565	563
Iceland	Agree	475	462	455	448	488	485	491	486
	Disagree	506	497	505	496	504	498	479	495
Ireland	Agree	532	521	511	489	537	522	529	513
	Disagree	552	524	551	535	522	510	557	538
Japan	Agree	607	597	603	599	609	600	607	598
	Disagree	619	616	619	601	612	600	638	629
Korea	Agree	616	598	603	589	616	599	602	585
	Disagree	615	600	634	617	580	533	650	638
Netherlands[2]	Agree	545	540	519	510	542	537	529	525
	Disagree	546	536	553	547	573	549	566	551
New Zealand	Agree	509	493	472	464	512	501	505	493
	Disagree	523	519	529	519	523	543	536	531
Norway	Agree	507	500	466	460	506	500	506	502
	Disagree	506	510	517	511	503	514	507	501
Portugal	Agree	458	446	447	436	459	449	454	439
	Disagree	467	463	469	460	480	448	471	462
Spain	Agree	491	480	481	461	488	481	482	470
	Disagree	494	487	500	493	519	505	509	500
Sweden	Agree	518	508	488	481	513	512	503	490
	Disagree	525	525	533	530	554	546	531	530
Switzerland[1]	Agree	551	544	518	505	537	533	528	525
	Disagree	547	543	561	554	581	570	564	553
United States[1]	Agree	496	490	470	461	501	498	490	488
	Disagree	511	506	520	514	511	503	524	512
Country mean	**Agree**	**542**	**537**	**531**	**524**	**538**	**530**	**536**	**530**
	Disagree	**533**	**522**	**544**	**534**	**541**	**536**	**545**	**532**

The data in the rows marked "agree" reflect the mean achievement of students who responded "agree" and "strongly agree". The data in the rows marked "disagree" reflect the mean achievement of students who responded "disagree" and "strongly disagree".

1. Countries met TIMSS sampling requirements only partially.
2. Countries did not meet TIMSS sampling requirements.

Source: International Association for the Evaluation of Educational Achievement (IEA)/Third International Mathematics and Science Study (TIMSS), 1994-1995.

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Table 9. Mean mathematics achievement of 4th-grade students, by gender and beliefs about what is important to do well in mathematics (1995)

		Natural ability		Good luck		Hard work		Memorization	
		Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
Australia[1]	Agree	405	397	374	365	410	401	396	391
	Disagree	399	415	441	449	377	386	420	419
Austria[1]	Agree	421	407	391	383	415	407	396	387
	Disagree	416	416	454	443	444	422	455	439
Canada	Agree	384	376	343	344	388	381	372	364
	Disagree	394	403	421	416	352	363	408	408
Czech Republic	Agree	421	417	408	411	422	416	419	405
	Disagree	439	434	462	452	453	487	441	450
Greece	Agree	329	322	298	297	341	340	328	333
	Disagree	347	356	369	373	301	315	355	344
Hungary[1]	Agree	408	399	388	378	404	395	396	385
	Disagree	351	366	452	461	408	428	445	457
Iceland	Agree	306	301	285	293	311	311	311	313
	Disagree	332	347	350	343	313	295	316	293
Ireland	Agree	405	406	380	389	408	405	404	402
	Disagree	395	422	441	448	361	416	403	427
Japan	Agree	465	450	440	433	473	457	471	459
	Disagree	467	476	497	480	417	429	410	398
Korea	Agree	487	468	478	454	491	470	492	472
	Disagree	497	479	506	492	450	424	476	453
Netherlands[1]	Agree	443	427	405	391	446	422	420	383
	Disagree	460	434	465	446	461	454	461	441
New Zealand	Agree	337	344	303	315	340	345	340	342
	Disagree	339	371	389	404	317	349	333	359
Norway	Agree	351	341	319	320	346	341	346	339
	Disagree	344	348	386	375	368	336	365	355
Portugal	Agree	316	307	298	295	319	310	319	307
	Disagree	316	317	346	338	264	236	306	309
United States	Agree	386	378	357	354	402	397	389	384
	Disagree	421	421	432	433	355	373	420	420
Country mean	**Agree**	**415**	**405**	**389**	**381**	**422**	**413**	**417**	**409**
	Disagree	**428**	**428**	**448**	**445**	**387**	**394**	**422**	**420**

The data in the rows marked "agree" reflect the mean achievement of students who responded "agree" and "strongly agree". The data in the rows marked "disagree" reflect the mean achievement of students who responded "disagree" and "strongly disagree".

[1] Countries met TIMSS sampling requirements only partially.

Source: International Association for the Evaluation of Educational Achievement (IEA)/Third International Mathematics and Science Study (TIMSS), 1994-1995.

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GLOSSARY

CONTINUING EDUCATION AND TRAINING FOR ADULTS

Continuing education and training (CET) for adults refers to all kinds of general and job-related education and training organised, financed or sponsored by authorities, provided by employers or self-financed. Job-related continuing education and training refers to all organised, systematic education and training activities in which people take part in order to obtain knowledge and/or learn new skills for a current or a future job, to increase ➡ earnings and to improve job and/or career opportunities in current or other fields.

COMPULSORY SUBJECTS

Subjects to be taught by each school and to be attended by each student.

CURRICULUM (INTENDED):

The intended curriculum is the subject matter content as defined at the national or the educational system level. The intended curriculum is embodied in textbooks, in curriculum guides, in the content of examinations, and in policies, regulations, and other official statements generated to direct the educational system.

EARNINGS

Earnings from work

Earnings from work refer to annual money earnings, *i.e.* direct pay for work before taxes. Income from other sources, such as government aid programmes, interest on capital, etc., is not taken into account. Mean earnings are calculated on the basis of data for all people with income from work, including the self-employed.

Relative earnings from work

Relative earnings from work are defined as the mean annual earnings from work of individuals with a certain level of ➡ educational attainment divided by the mean annual earnings from work of individuals whose highest level of education is the upper secondary level.

EDUCATIONAL ATTAINMENT

Educational attainment is expressed by the highest completed level of education, defined according to the ➡ *International Standard Classification of Education* (ISCED).

EDUCATIONAL COSTS

Educational costs represent the value of all resources used in the schooling process, whether reflected in school budgets and expenditures or not.

EDUCATIONAL EXPENDITURE

Educational expenditure refers to the financial disbursements of educational institutions for the purchase of the various resources or inputs of the schooling process such as administrators, teachers, materials, equipment and facilities.

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Current and capital

Current expenditure is expenditure on goods and services consumed within the current year, which needs to be made recurrently to sustain the production of educational services. Minor expenditure on items of equipment, below a certain cost threshold, are also reported as current spending. *Capital expenditure* represents the value of educational capital acquired or created during the year in question – that is, the amount of capital formation – regardless of whether the capital outlay was financed from current revenue or by borrowing. Capital expenditure includes outlays on construction, renovation, and major repair of buildings and expenditure for new or replacement equipment. Although capital investment requires a large initial expenditure, the plant and facilities have a lifetime that extends over many years.

Direct expenditure on educational institutions

Direct expenditure on educational institutions may take one of two forms: *i)* purchases by the government agency itself of educational resources to be used by educational institutions (*e.g.* direct payments of teachers' salaries by a central or regional education ministry); *ii)* payments by the government agency to educational institutions that have responsibility for purchasing educational resources themselves (*e.g.* a government appropriation or block grant to a university, which the university then uses to compensate staff and to buy other resources). Direct expenditure by a government agency does not include tuition payments received from students (or the families) enrolled in public schools under that agency's jurisdiction, even if the tuition payments flow, in the first instance, to the government agency rather than to the institution in question.

Financial aid to students

Financial aid to students comprises: *i) Government scholarships and other government grants to students or households.* These include, in addition to scholarships and similar grants (fellowships, awards, bursaries, etc.), the following items: the value of special subsidies provided to students, either in cash or in kind, such as free or reduced-price travel on public transport systems; and family allowances or child allowances *that are contingent on student status*. Any benefits provided to students or households in the form of tax reductions, tax subsidies, or other special tax provisions are not included; *ii) Student loans*, which are reported on a gross basis – that is, without subtracting or netting out repayments or interest payments from the borrowers (students or households).

Intergovernmental transfers

Intergovernmental transfers are transfers of funds designated for education from one level of government to another. The restriction to funds earmarked for education is very important in order to avoid ambiguity about funding sources. General-purpose intergovernmental transfers are not included (*e.g.* revenue sharing grants, general fiscal equalisation grants, or distributions of shared taxes from a national government to provinces, states, or *Länder*), even where such transfers provide the funds that regional or local authorities draw on to finance education.

Public and private sources

Public expenditure refers to the spending of public authorities at all levels. Expenditure that is not directly related to education (*e.g.* culture, sports, youth activities, etc.) is, in principle, not included. Expenditure on education by other ministries or equivalent institutions, for example Health and Agriculture, is included.

Private expenditure refers to expenditure funded by private sources, *i.e.* households and other private entities. "*Households*" means students and their families. "*Other private entities*" include private business firms and non-profit organisations, including religious organisations, charitable organisations, and business and labour associations. Private expenditure comprises school fees; materials such as textbooks and teaching equipment; transport to school (if organised by the school); meals (if provided by the school); boarding fees; and expenditure by employers on initial ➡ vocational training. Note that private ➡ educational institutions are considered service providers, not funding sources.

Staff compensation

Expenditure on staff compensation includes gross salaries plus non-salary compensation (fringe benefits). *Gross salary* means the total salary earned by employees (including any bonuses, extra allowances, etc.) before subtracting any taxes or employees' contributions for pensions, social security, or other purposes. *Non-salary compensation* includes expenditure by employers or public authorities on retirement programmes, health care or health insurance, unemployment compensation, disability insurance, other forms of social insurance, non-cash supplements (*e.g.* free or subsidised housing), maternity benefits, free or subsidised child care, and such other fringe benefits as each country may provide. This expenditure does not include contributions made by the employees themselves, or deducted from their gross salaries.

Transfers and payments to other private entities

Government transfers and certain other payments (mainly subsidies) to other private entities (firms and non-profit organisations) can take diverse forms – for example, transfers to business or labour associations that provide adult education; subsidies to firms or labour organisations (or associations of such entities) that operate apprenticeship programmes; subsidies to non-profit organisations that provide student housing or student meals; and interest rate subsidies to private financial institutions that make student loans.

EDUCATIONAL INSTITUTIONS

Educational institutions are defined as decision-making centres which provide educational services to individuals and/or other institutions. The definition is based on the point of view of management and control, which are normally carried out by a Director, Principal, or President and/or a Governing Board, (or similar titles such as Management Committee, etc.). In general, if a centre has a Director, Principal, or President and a Governing Board then it is classified as an institution. If it lacks these, however, and is controlled by an educational institution, then it is not a separate institution but rather an off-campus centre of an institution. Where a centre is not managed by a Governing Board but is administered directly by a public education authority, the centre is classified as an institution in its own right.

Public and private educational institutions

Educational institutions are classified as either public or private according to whether a public agency or a private entity has the ultimate power to make decisions concerning the institution's affairs.

An institution is classified as *public* if it is: *i)* controlled and managed directly by a public education authority or agency; or *ii)* controlled and managed either by a government agency directly or by a governing body (Council, Committee, etc.), most of whose members are either appointed by a public authority or elected by public franchise.

An institution is classified as *private* if it is controlled and managed by a non-governmental organisation (*e.g.* a Church, a Trade Union or a business enterprise), or if its Governing Board consists mostly of members not selected by a public agency.

In general, the question of who has the ultimate management control over an institution is decided with reference to the power to determine the general activity of the school and to appoint the officers managing the school. The extent to which an institution receives its funding from public or private sources does *not* determine the classification status of the institution.

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A distinction is made between "government-dependent" and "independent" private institutions on the basis of the degree of a private institution's dependence on funding from government sources. A government-dependent private institution is one that receives more than 50 per cent of its core funding from government agencies. An independent private institution is one that receives less than 50 per cent of its core funding from government agencies. "Core funding" refers to the funds that support the basic educational services of the institution. It does not include funds provided specifically for research projects, payments for services purchased or contracted by private organisations, or fees and subsidies received for ancillary services, such as lodging and meals. Additionally, institutions should be classified as government-dependent if their teaching staff are paid by a government agency – either directly or through government.

EDUCATIONAL PERSONNEL: FULL-TIME, PART-TIME AND FULL-TIME EQUIVALENT

The classification of educational staff as "full-time" and "part-time" is based on a concept of statutory working time (as opposed to actual or total working time or actual teaching time). Part-time employment refers to individuals who have been employed to perform less than the amount of statutory working hours required of a full-time employee. A ➡ teacher who is employed for at least 90 per cent of the normal or statutory number of hours of work of a full-time teacher over the period of a complete school year is classified as a full-time teache. for the reporting of head-count data. A teacher who is employed for less than 90 per cent of the normal or statutory number of hours of work of a full-time teacher over the period of a complete school year is classified as a part-time teacher. *Full-time equivalents* are generally calculated in person years. The unit for the measurement of full-time equivalents is full-time employment, *i.e.* a full-time teacher equals one FTE. The full-time equivalence of part-time educational staff is then determined by calculating the ratio of hours worked over the statutory hours worked by a full-time employee during the school year.

EDUCATIONAL RESEARCH AND DEVELOPMENT (R&D)

Educational R&D is systematic, original investigation or inquiry and associated developmental activities concerning: the social, cultural, economic and political context within which education systems operate; the purposes of education; the processes of teaching, learning and personal development; the work of educators; the resources and organisational arrangements to support educational work; the policies and strategies to achieve educational objectives; and the social, cultural, political and economic outcomes of education.

The major categories of R&D personnel are researchers, technicians and equivalent staff, and other support staff. Post-graduate students are counted as researchers, but reported separately within that category.

EMPLOYED POPULATION

The *employed population* is defined, in accordance with ILO guidelines, as all persons above a specific age who during a specified brief period, either one week or one day, were in paid employment or self-employment. It includes both those in civilian employment and those in the armed forces.

GRADUATES

Graduates are those who were enrolled in the final year of a level of education and completed it successfully during the reference year. However, there are exceptions (especially at the university tertiary level of education) where graduation can also be recognised by the awarding of a certificate without the requirement that the participants are enrolled. *Completion* is defined by each country: in some countries, completion occurs as a result of passing an examination or a series of examinations. In other countries, completion occurs after a requisite number of course hours have been accumulated (although completion of some or all of the course hours may also involve examinations). *Success* is also defined by each country: in some countries it is associated with the obtaining of a degree, cer-

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tificate, or diploma after a final examination; while in other countries, it is defined by the completion of programmes without a final examination.

GROSS DOMESTIC PRODUCT

Gross Domestic Product (GDP) refers to the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). For countries which provide this information for a reference year different from the calendar year (such as Australia and New Zealand) adjustments are made by linearly weighting their GDP between two adjacent national reference years to match the calendar year. Data for GDP are provided in Annex 2.

GROSS SALARY

Gross salary is the sum of wages (total sum of money that is paid by the employer for the labour supplied) minus employer's contributions for social security and pension (according to existing salary scales). Bonuses that constitute a regular part of the wages – such as a thirteenth month or a holiday or regional bonus – are included in the gross salary.

ISCED LEVELS OF EDUCATION

The levels of education used in this publication are defined with reference to the *International Standard Classification of Education* (ISCED) of 1997. However, some statistics on trends in education are based on the older version of ISCED of 1976 in order to ensure comparability between the two different years. For details on ISCED 1997 and how it is nationally implemented see *Classifying Educational Programmes: Manual for ISCED-97 Implementation in OECD Countries* (OECD, 1999).

Early childhood education (ISCED 0)

Early childhood education serves the dual purpose of giving the child daily care while the parents are at work and contributing to the child's social and intellectual development in keeping with the rules and guidelines of the pre-primary curriculum. It covers all forms of organised and sustained centre-based activities designed to foster learning, and emotional and social development in children. The term *centre-based* distinguishes between activities in institutional settings (such as primary schools, pre-schools, kindergartens, day-care centres) and services provided in households or family settings. Generally start programmes at this level not before the age of 3. Children aged 2 years or younger are, however, also included in the statistics if they are enrolled in programmes that are considered educational by the country concerned.

Primary level of education (ISCED 1)

Primary education usually begins at age 5, 6, or 7 and lasts for 4 to 6 years (the mode of the OECD countries is 6 years). Programmes at the primary level generally require no previous formal education. Coverage at the primary level corresponds to ISCED 1, except that an upper threshold is specified as follows: in countries where basic education covers the entire compulsory school period (*i.e.* where there is no break in the system between primary and lower secondary education) and where in such cases basic education lasts for more than 6 years, only the first 6 years following early childhood education are counted as primary education.

Lower secondary level of education (ISCED 2)

The core of *lower secondary education* continues the basic programmes of the primary level but usually in a more subject-oriented manner. This usually consists of 2 to 6 years of schooling (the mode of OECD countries is 3 years). The common feature of lower secondary programmes is their entrance requirement, *i.e.* a minimum of primary education completed or demonstrable ability to benefit from participation in the programme.

Upper secondary level of education (ISCED 3)

Upper secondary education usually consists of 2 to 5 years of schooling. Admission into educational programmes at the upper secondary level requires the completion of the lower secondary level of education, or a combination of basic education and vocational experience that demonstrates an ability to handle the subject matter. Upper secondary education may either be ***preparatory, i.e.*** preparing students for tertiary education(ISCED 3A and ISCED 3B) or ***terminal, i.e.*** preparing the students for entry directly into working life (ISCED 3C).

Post-secondary non-tertiary level of education (ISCED 4)

Post-secondary non-tertiary educational programmes straddle the boundary between upper secondary and post-secondary education from an international point of view, even though they might clearly be considered upper secondary or post-secondary programmes in a national context. Although their content may not be significantly more advanced than upper secondary programmes, they serve to broaden the knowledge of participants who have already gained an upper secondary qualification. The students tend to be older than those enrolled at the upper secondary level.

First stage of tertiary education (ISCED 5)

ISCED 5 programmes have an educational content more advanced than those offered at Levels 3 and 4. Entry to these programmes normally requires the successful completion of ISCED Level 3A or 3B or a similar qualification at ISCED Level 4A or 4B. Programmes at Level 5 must have a cumulative theoretical duration of at least 2 years from the beginning of Level 5 and do not lead directly to the award of an advanced research qualification (those programmes are at ISCED 6).

Tertiary-type A programmes (ISCED 5A) are largely theory-based and are designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Tertiary-type A programmes have a minimum cumulative theoretical duration (at tertiary level) of three years' full-time equivalent, although they typically last four or more years. These programmes are not exclusively offered at universities. Conversely, not all programmes nationally recognised as university programmes fulfil the criteria to be classified as tertiary-type A. Tertiary-type A programmes include second degree programmes like the American Master. First and second programmes are sub-classified by the cumulative duration of the programmes, *i.e.* the total study time needed at the tertiary level to complete the degree.

Tertiary-type B programmes (ISCED 5B) are typically shorter than those of tertiary-type A and focus on practical, technical or occupational skills for direct entry into the labour market, although some theoretical foundations may be covered in the respective programmes. They have a minimum duration of two years full-time equivalent at the tertiary level.

Advanced Research Qualification (ISCED 6)

This level is reserved for tertiary programmes that lead directly to the award of an advanced research qualification, *e.g.* an Ph.D. The theoretical duration of these programmes is 3 years full-time in most countries (for a cumulative total of at least 7 years full-time at the tertiary level), although the actual enrolment time is typically longer. The programmes are devoted to advanced study and original research.

■ NEW ENTRANTS TO A LEVEL OF EDUCATION

New entrants to a level of education are students who are entering any programme leading to a recognised qualification at this level of education for the first time, irrespective of whether students enter the

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programme at the beginning or at an advanced stage of the programme. Individuals who are returning to study at a level following a period of absence from studying at that same level are not considered new entrants. Foreign students who enrol in a country's education system for the first time in a post-graduate programme are considered new entrants to the tertiary level.

PURCHASING POWER PARITIES

Purchasing Power Parities (PPP) are the currency exchange rates that equalise the purchasing power of different currencies. This means that a given sum of money, when converted into different currencies at the PPP rates, will buy the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion which eliminate the differences in price levels among countries. Thus, when expenditure on GDP for different countries is converted into a common currency by means of PPPs, it is, in effect, expressed at the same set of international prices so that comparisons between countries reflect only differences in the volume of goods and services purchased. The purchasing power parities used in this publication are given in Annex 2.

STUDENTS

A *student* is defined as any individual participating in educational services covered by the data collection. The *number of students enrolled* refers to the number of individuals (head count) who are enrolled within the reference period and not necessarily to the number of registrations. Each student enrolled is counted only once.

STUDENTS ENROLLED: FULL-TIME, PART-TIME AND FULL-TIME EQUIVALENT

Students are classified by their pattern of attendance, *i.e.*, full-time or part-time. The part-time/full-time classification is regarded as an *attribute of student participation* rather than as an attribute of the educational programmes or the provision of education in general. Four elements are used to decide whether a student is full-time or part-time: the units of measurement for course load; a normal full-time course load, which is used as the criterion for establishing full-time participation; the student's actual course load; and the period of time over which the course loads are measured. In general, students enrolled in *primary and secondary level* educational programmes are considered to participate full-time if they attend school for at least 75 per cent of the school day or week (as locally defined) and would normally be expected to be in the programme for the entire academic year. Otherwise, they are considered part-time. When determining full-time/part-time status, the work-based component in combined school and work-based programmes is included. At the *tertiary level*, an individual is considered full-time if he or she is taking a course load or educational programme considered to require at least 75 per cent of a full-time commitment of time and resources. Additionally, it is expected that the student will remain in the programme for the entire year.

The *full-time equivalent* (FTE) *measure* attempts to standardise a student's actual load against the normal load. For the reduction of head-count data to FTEs, where data and norms on individual participation are available, course load is measured as the product of the fraction of the normal course load for a full-time student and the fraction of the school/academic year. [FTE = (actual course load/normal course load) x (actual duration of study during reference period/normal duration of study during reference period).] When actual course load information is not available, a full-time student is considered equal to one FTE.

TEACHERS

A *teacher* is defined as a person whose professional activity involves the transmission of knowledge, attitudes and skills that are stipulated in a formal curriculum to students enrolled in an educational programme. The teacher category includes only personnel who participate directly in instructing students.

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This definition does not depend on the qualification held by the teacher or on the delivery mechanism. It is based on three concepts: *activity*, thus excluding those without active teaching duties – although teachers temporarily not at work (*e.g.* for reasons of illness or injury, maternity or parental leave, holiday or vacation) are included; *profession*, thus excluding people who work occasionally or in a voluntary capacity in ➡ educational institutions; and *educational programme*, thus excluding people who provide services other than formal instruction to students (*e.g.* supervisors, activity organisers, etc.), whether the programme is established at the national or school level.

In ➡ vocational and technical education, teachers of the "school element" of apprenticeships in a dual system are included in the definition, and trainers of the "in-company element" of a dual system are excluded.

Headteachers without teaching responsibilities are not defined as teachers, but classified separately. Headteachers who do have teaching responsibilities are defined as (part-time) teachers, even if they only teach for 10 per cent of their time. Former teachers, people who work occasionally or in a voluntary capacity in schools, people who provide services other than formal instruction, *e.g.*, supervisors or activity organisers, are also excluded.

Teacher student ratios are based on ➡ full-time equivalents (FTEs) of teacher and students.

■ TYPICAL AGES

Typical ages refer to the ages that normally correspond to the age at entry and ending of a cycle of education. These ages relate to the theoretical duration of a cycle assuming full-time attendance and no repetition of a year. The assumption is made that, at least in the ordinary education system, a student can proceed through the educational programme in a standard number of years, which is referred to as the theoretical duration of the programme. The *typical starting age* is the age at the *beginning* of the *first* school/academic year of the relevant level and programme. The *typical ending age* is the age at the *beginning* of the *last* school/academic year of the relevant level and programme. The *typical graduation age* is the age at the *end* of the *last* school/academic year of the relevant level and programme when the qualification is obtained. Using a transformation key that relates the levels of a school system to ISCED, the typical age range for each ISCED level can be derived.

■ TOTAL LABOUR FORCE

The *total labour force* or currently active population comprises all persons who fulfil the requirements for inclusion among the employed or the unemployed as defined in OECD *Labour Force Statistics*.

■ TOTAL POPULATION

The *total population* comprises all nationals present in or temporarily absent from the country and aliens permanently settled in the country. For further details, see OECD *Labour Force Statistics*.

■ TOTAL PUBLIC EXPENDITURE

Total public expenditure corresponds to the non-repayable current and capital expenditure of all levels of government. Current expenditure includes final consumption expenditure (*e.g.* compensation of employees, consumption intermediate goods and services, consumption of fixed capital, and military expenditure), property income paid, subsidies, and other current transfers paid (*e.g.* social security, social assistance, pensions and other welfare benefits). Capital expenditure is spending to acquire and/or improve fixed capital assets, land, intangible assets, government stocks, and non-military, non-financial assets, and spending to finance net capital transfers. The total public expenditure used in this publication are given in Annex 2.

UNEMPLOYED

The *unemployed* are defined, in accordance with the ILO guidelines on unemployment statistics, as persons who are without work, actively seeking employment and currently available to start work. The unemployment rate is defined as the number of unemployed persons as a percentage of the labour force.

VOCATIONAL, PRE-VOCATIONAL AND GENERAL EDUCATION

Some indicators distinguish between three categories based on the degree to which a programme is specifically oriented towards a specific class of occupations or trades and leads to a labour-market relevant qualification:

General education is not designed explicitly to prepare participants for a specific class of occupations or trades or for entry into further vocational or technical education programmes. Less than 25% of the programme content is vocational or technical.

Pre-vocational education is mainly designed to introduce participants to the world of work and to prepare them for entry into further vocational or technical education programmes. Successful completion of such programmes does not lead to a labour-market relevant vocational or technical qualification.

Vocational education prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification.

Some indicators divide vocational programmes into *school-based programmes and combined school and work-based programmes* on the basis of the amount of training that is provided in school as opposed to training in the workplace. In *school-based* vocational and technical programmes, instruction takes place (either partly or exclusively) in ➡ educational institutions. These include special training centres for vocational education run by public or private authorities or enterprise-based special training centres if these qualify as educational institutions. These programmes can have an on-the-job training component, *i.e.* a component of some practical experience in the workplace. In *combined school and work-based programmes*, instruction is shared between school and the workplace, although instruction may take place primarily in the workplace. Programmes are classified as combined school and work-based if less than 75 per cent of the curriculum is presented in the school environment or through distance education. Programmes that are more than 90 per cent work-based are excluded.

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EDUCATION AND SKILLS

Education at a Glance

OECD INDICATORS

Across OECD countries, governments are seeking policies to make education more effective while searching for additional resources to meet the increasing demand for education. The OECD education indicators enable countries to see themselves in the light of other countries' performance.

Education at a Glance – OECD Indicators 2000 provides a rich and up-to-date array of indicators representing the consensus of professional thinking on how to measure the current state of education internationally. They provide information on the human and financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investments. The thematic organisation of the volume and the background information accompanying the tables and charts make this publication a valuable resource for anyone interested in analysing education systems across countries.

This year's edition of *Education at a Glance* takes a further step towards reporting internationally comparable data on lifelong learning and its impact on society and the economy. It also provides new insights into the financing of education, with a focus on public subsidies and transfers for education and their beneficiaries. New indicators also reflect on international student mobility, participation in skill improvement among the employed population and students with special educational needs.

Finally, for many indicators, more countries are now providing data. Through the *World Education Indicators* programme, a wide range of non-member countries have also contributed to this year's edition of *Education at a Glance*, extending the coverage of some of the indicators to almost two-thirds of the world population.

The data underlying the OECD education indicators are accessible via the Internet (http://www.oecd.org/els/stats/els_stat.htm).

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